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Aoki et al.

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(45) **Date of Patent: Dec. 17, 2013**

(54) **WAGERING GAME INCLUDING MULTIPLE ARRAYS OF REEL SYMBOLS**

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(51) **Int. Cl.**
A63F 9/00 (2006.01)

(52) **U.S. Cl.**
USPC **463/20**

(58) **Field of Classification Search**
None
See application file for complete search history.

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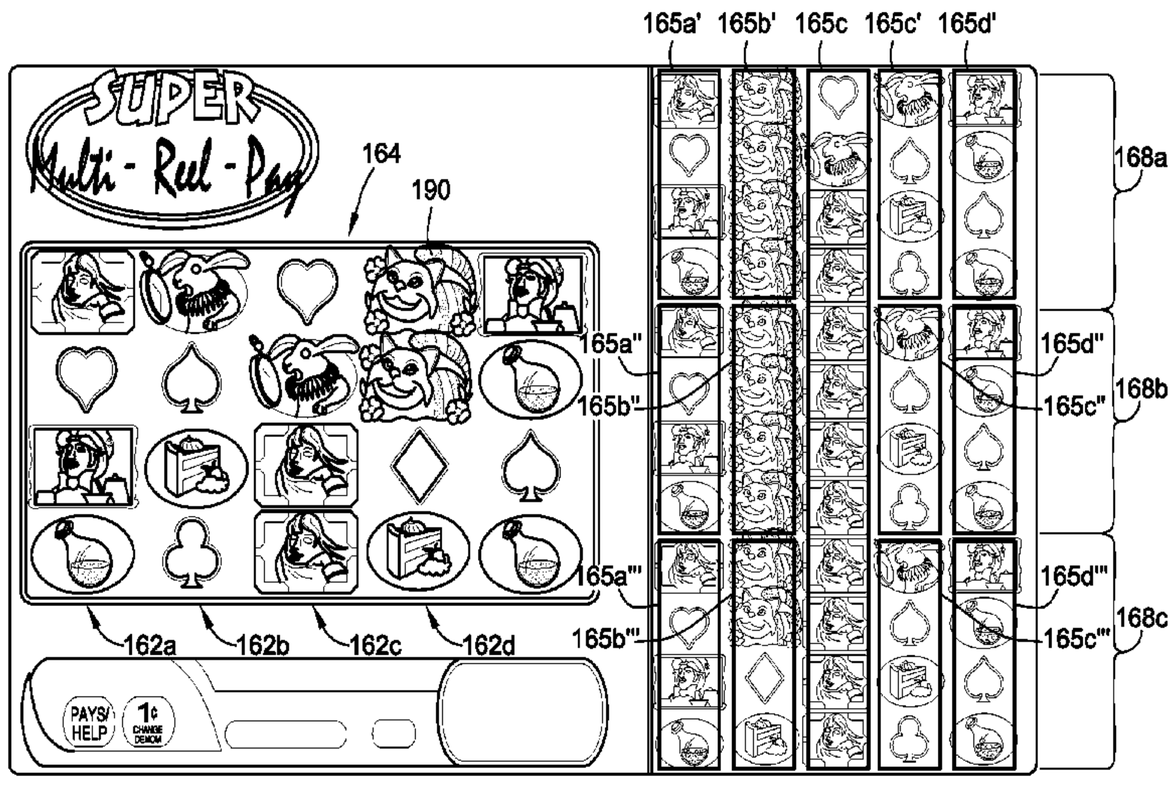
(57) **ABSTRACT**

A gaming system displays a first array of symbols and a second array of symbols for a wagering game. The second array of symbols includes at least one second-array reel. The at least one second-array reel includes a predetermined sequence of symbols. The at least one second-array reel rotates the predetermined sequence of symbols to determine at least partially the second array of symbols. The second array is divided into at least two sub-arrays, the at least one second-array reel extending into the at least two sub-arrays. A controller selects at least one symbol from the first array and copies the at least one selected symbol into one or more positions in each of the at least two sub-arrays. The at least two sub-arrays is displayed with combinations of symbols including the at least one selected symbol. The controller evaluates the combinations to determine an outcome to the wagering game.

13 Claims, 19 Drawing Sheets



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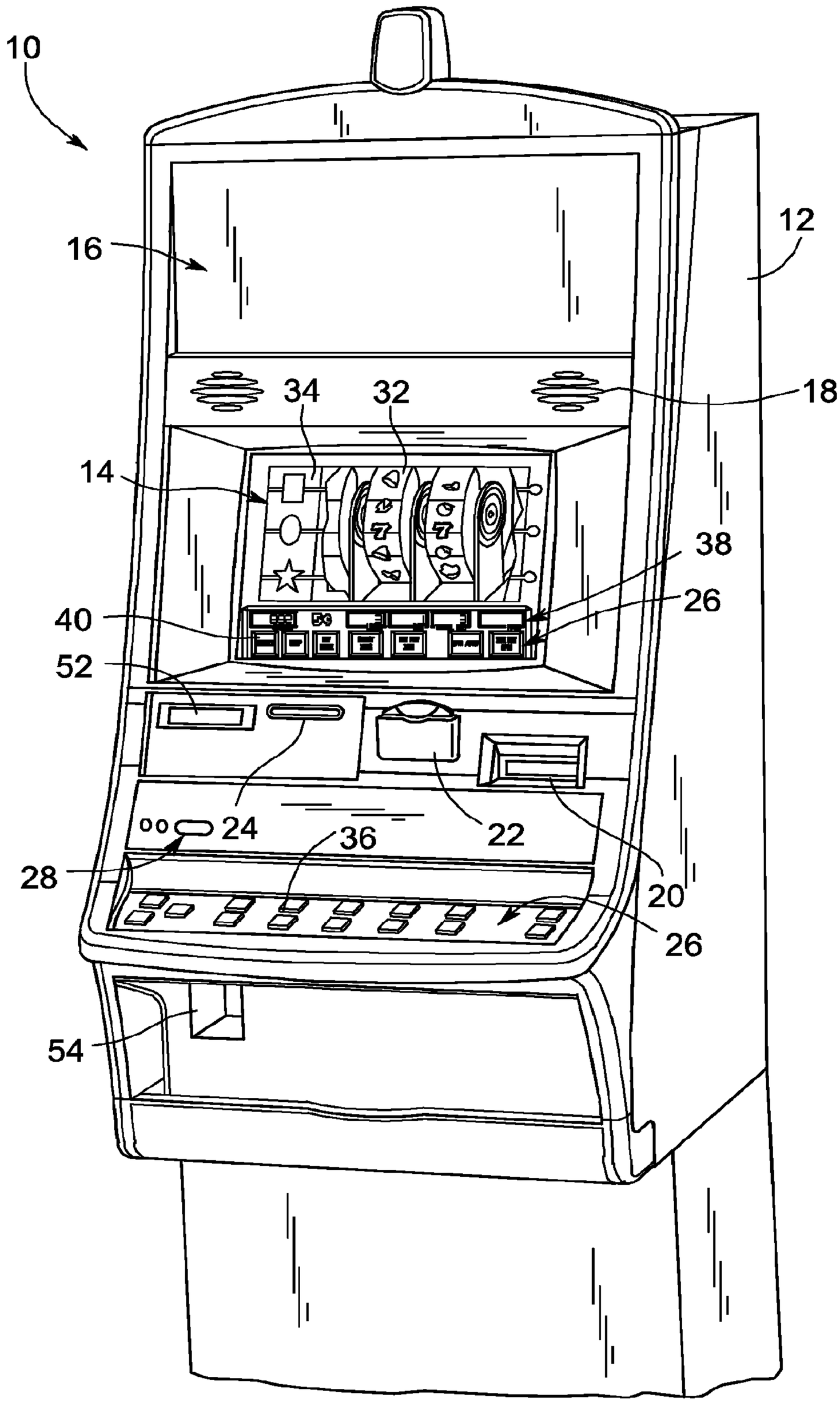


FIG. 1
(PRIOR ART)

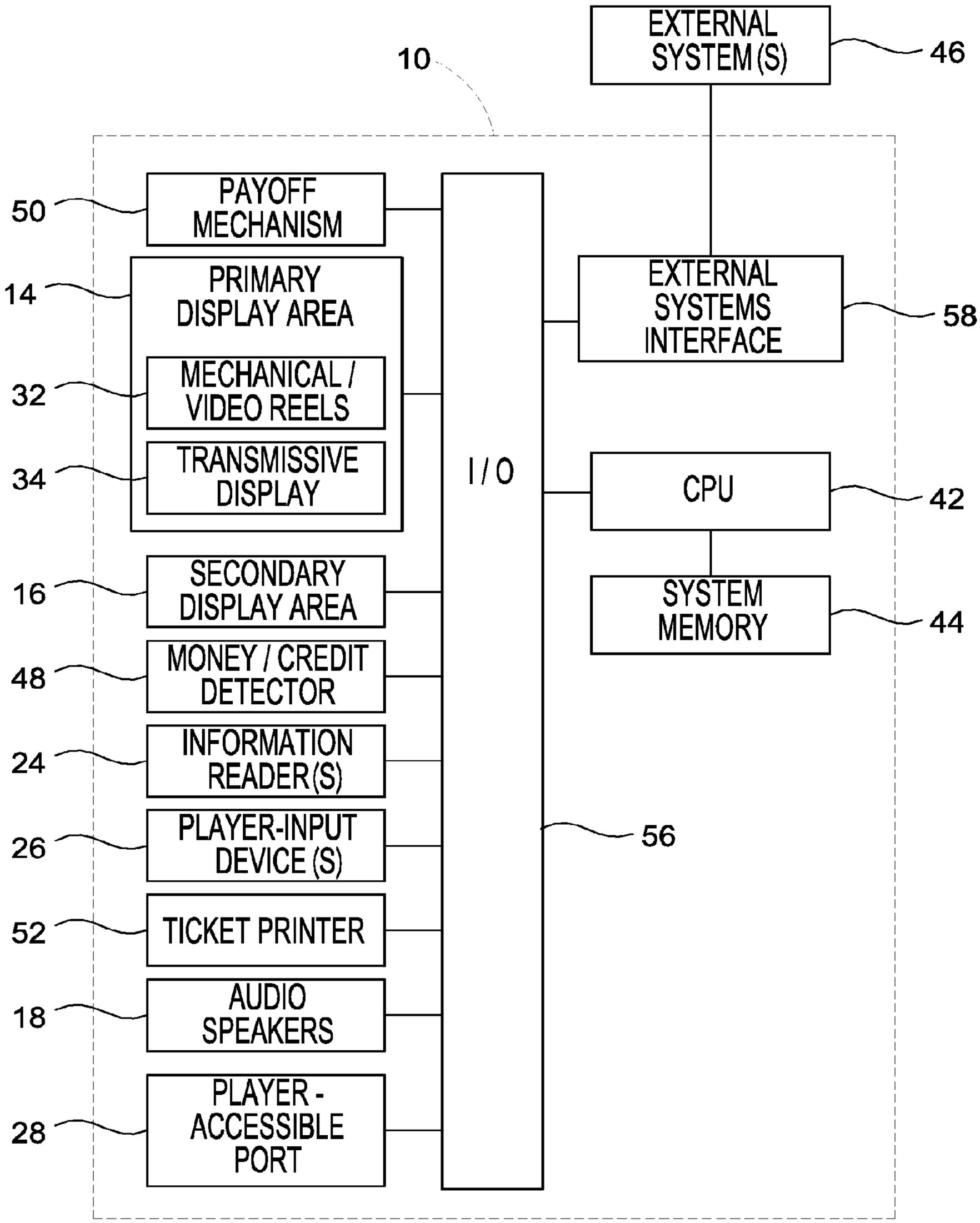


FIG. 2
(PRIOR ART)

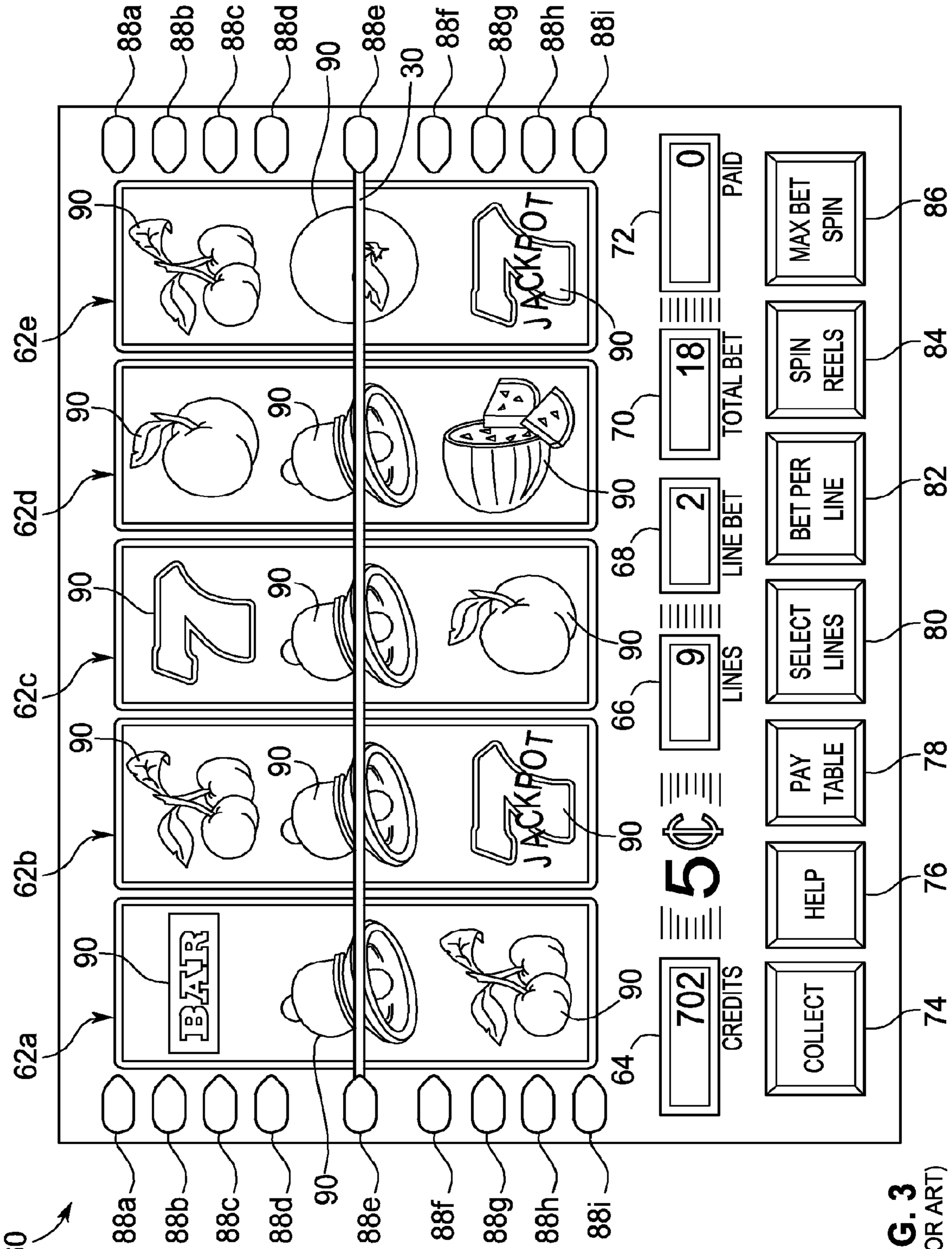


FIG. 3
(PRIOR ART)

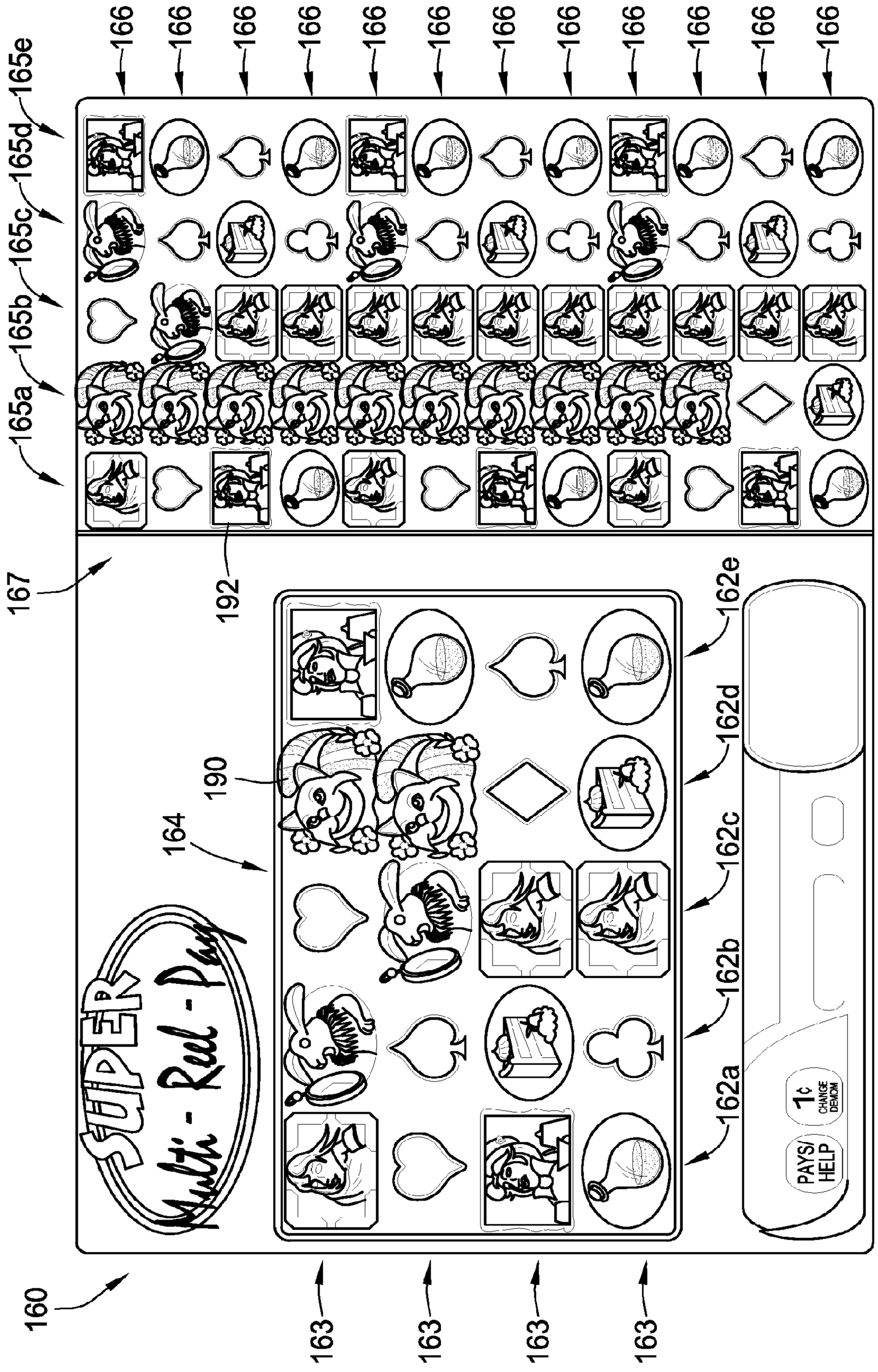
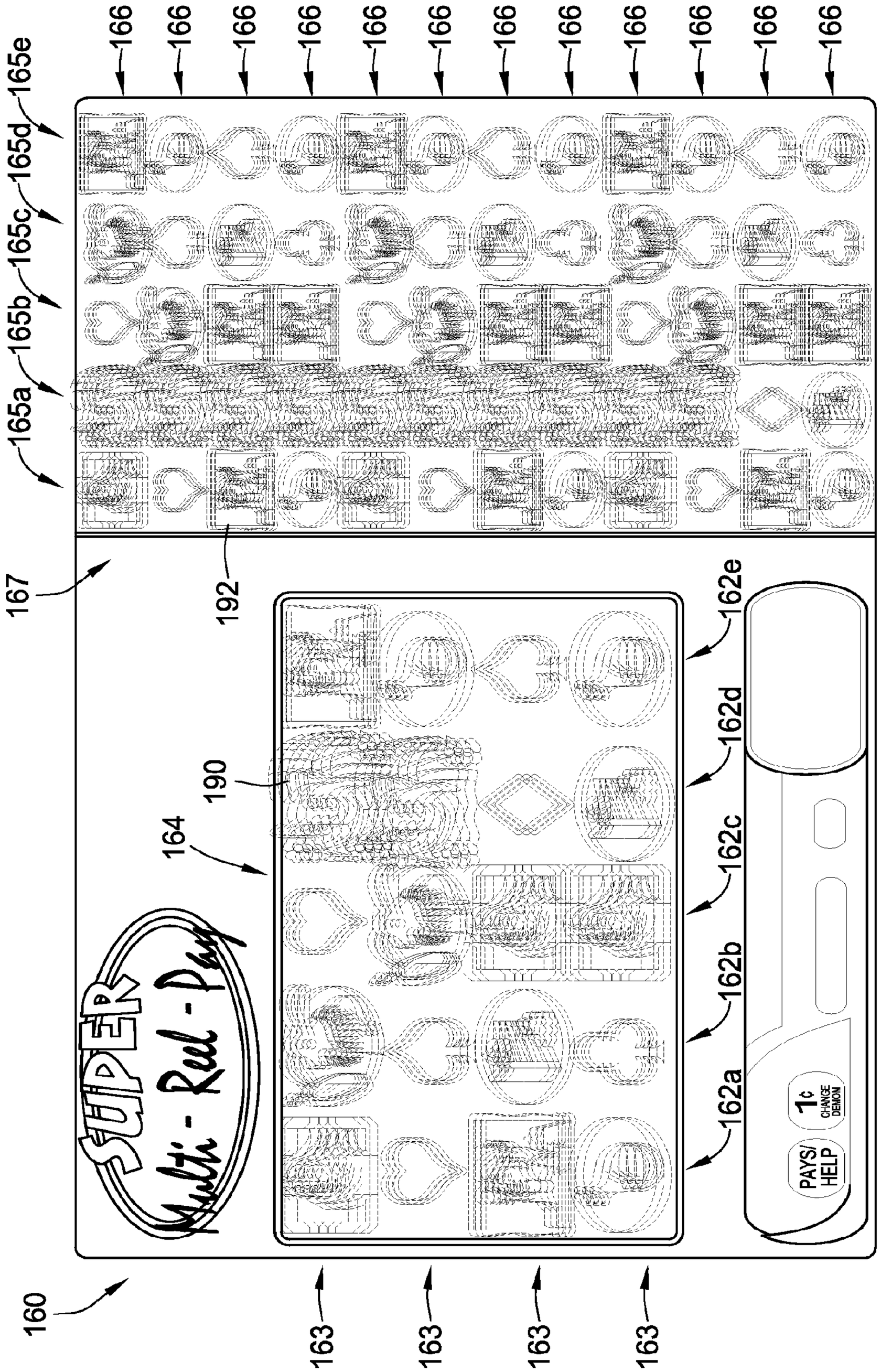

166
165e
165d
165c
165b
165a
167
192
190
164
162e
162d
162c
162b
162a
160
163
SUPER
Multi - Rul - P
PAYS/
HELP
1¢
CHANGE
DENOM

FIG. 4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165e
165d
165c
165b
165a
167
192
190
164
162e
162d
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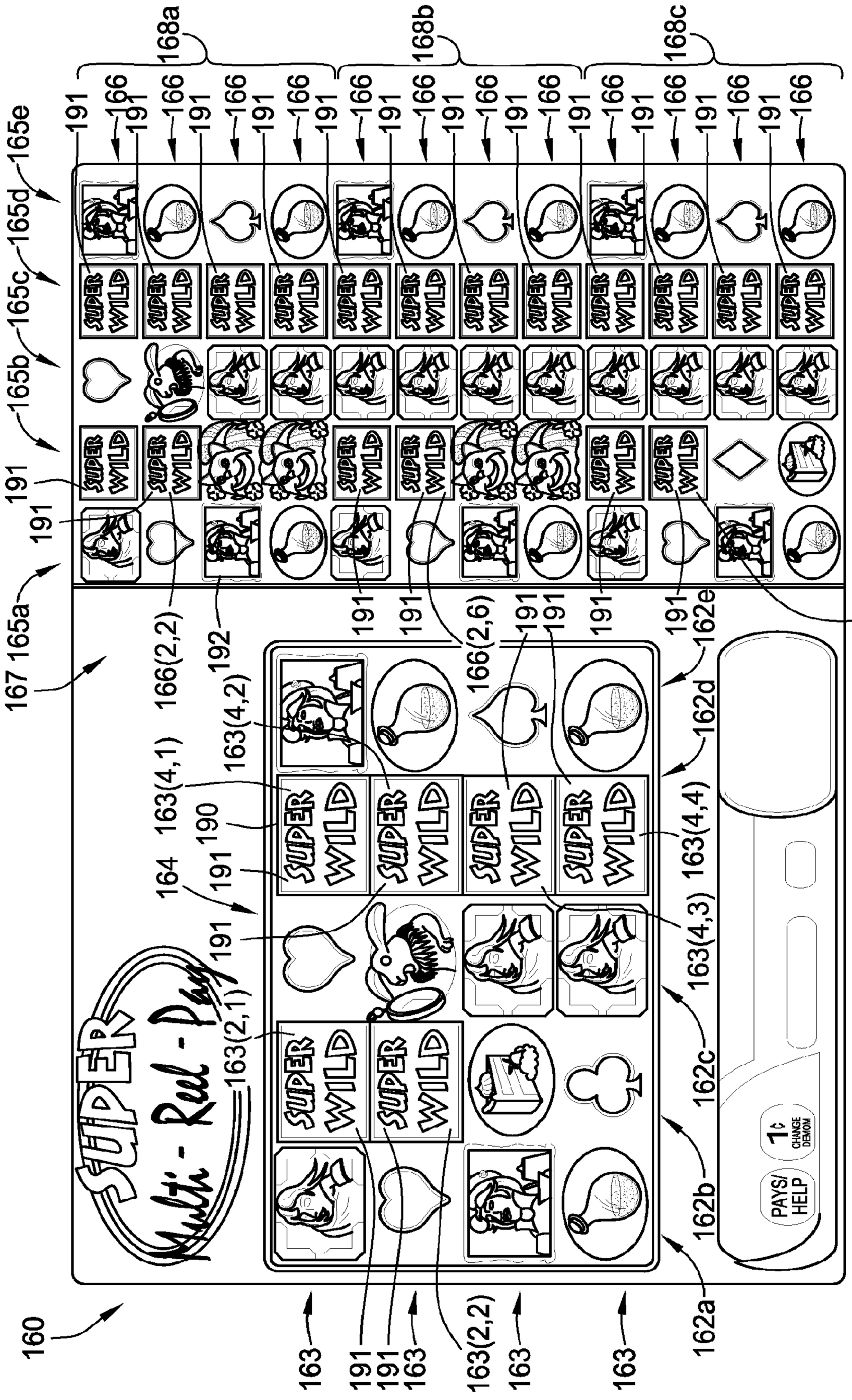
162a
160
163
SUPER
Multi - Rul - Play
PAYS/
HELP
1¢
CHANGE
DEMON

FIG. 5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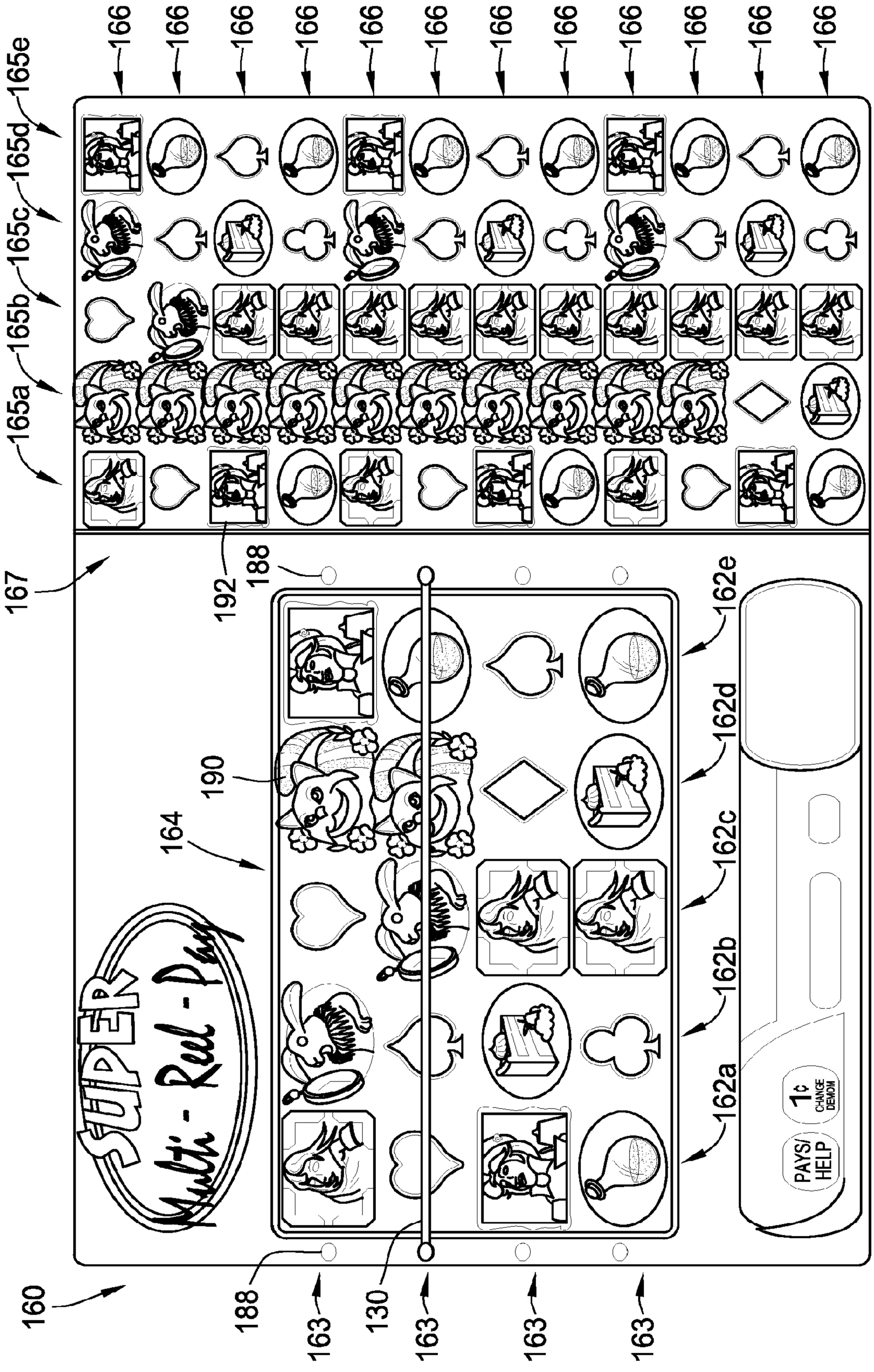
168b
168c
165e
165d
165c
165b
165a
167
160
191
166
166(2,2)
166(2,6)
166(2,10)
192
163(4,2)
163(4,1)
163(2,1)
163(4,4)
163(4,3)
163(2,2)
163
164
190
162e
162d
162c
162b
162a
SUPER WILD
SUPER Multi - Rul - Play
PAYS/ HELP
1¢ CHANGE DENOM

FIG. 6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165d
165c
165b
165a
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192
188
190
164
162e
162d
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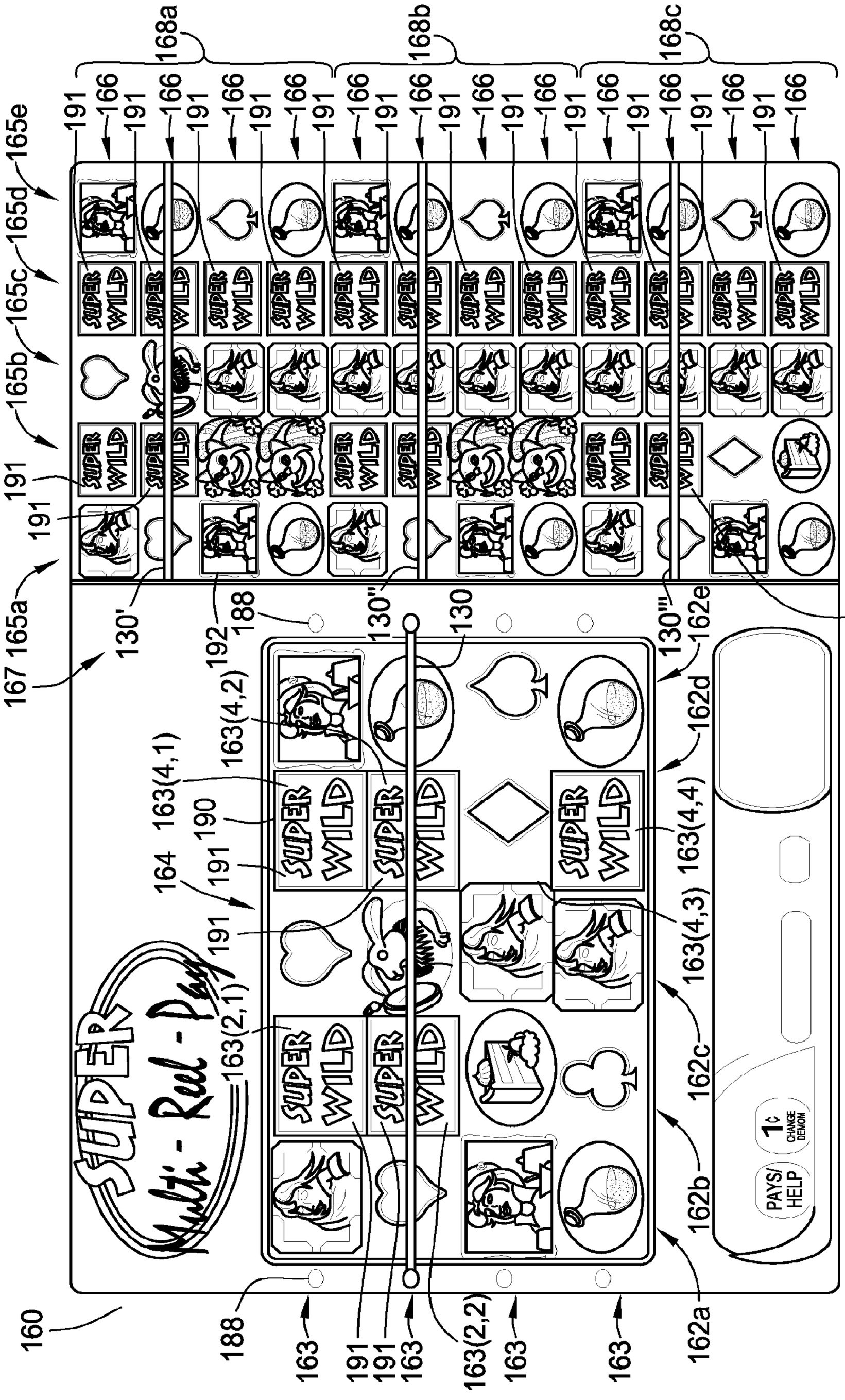
160
130
163
SUPER
Multi - Rul - Play
PAYS/
HELP
1¢
CHANGE
DENOM

FIG. 7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165e
165d
165c
165b
165a
167
130'
130"
130
130"'
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192
162e
162d
162c
162b
162a
160
163(4,2)
163(4,1)
163(2,1)
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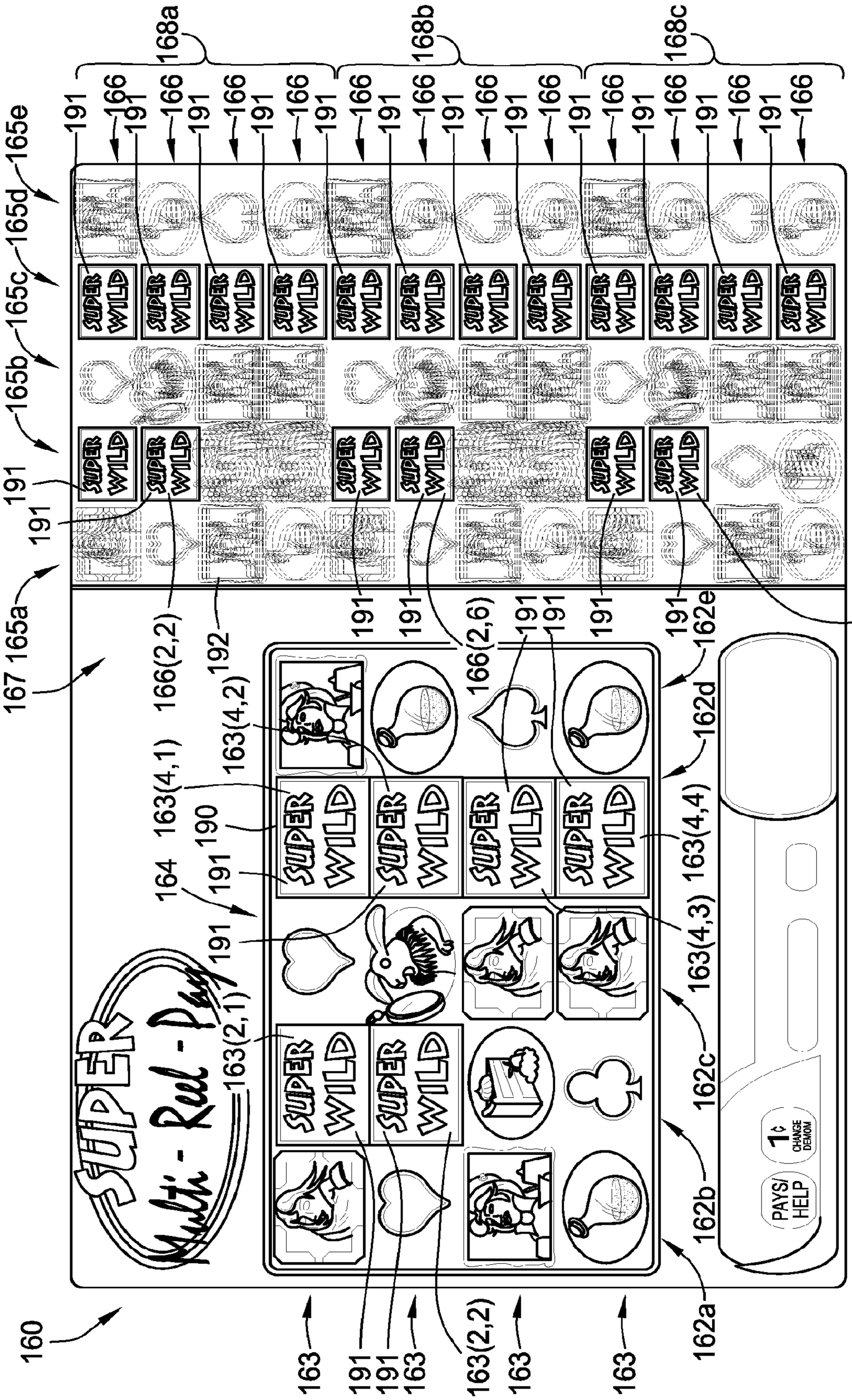
164
SUPER WILD
PAYS/ HELP
1¢ CHANGE DEMOM

FIG. 8 166(2,10)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168b
168c
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165d
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165a
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166(2,6)
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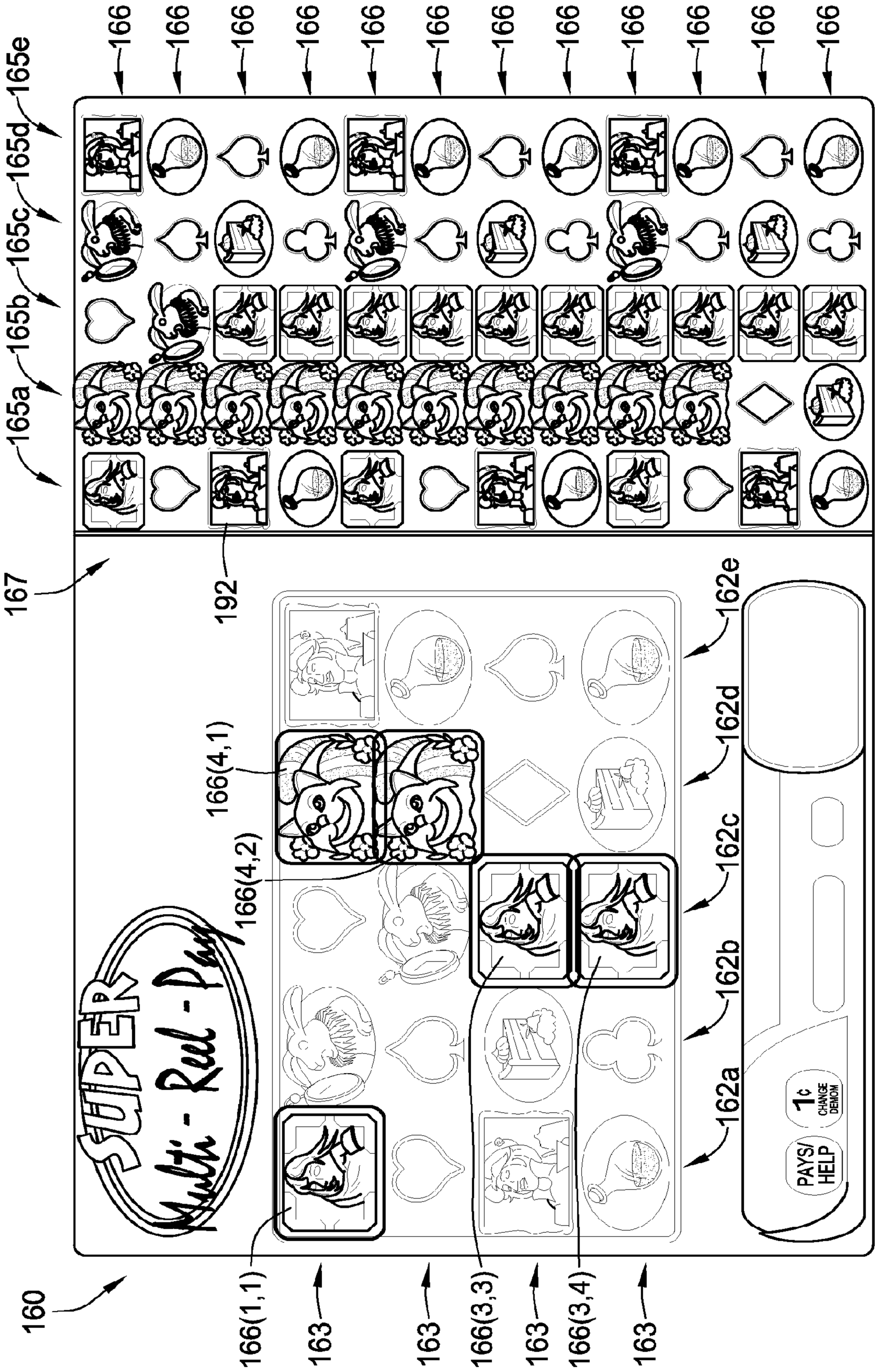
192
163(4,1)
163(4,2)
163(4,3)
163(4,4)
163(2,1)
163(2,2)
163
164
190
162a
162b
162c
162d
162e
SUPER WILD
Multi - Rul - Play
PAYS/ HELP
1¢ CHANGE DENOM

FIG. 9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165d
165c
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192
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162d
162c
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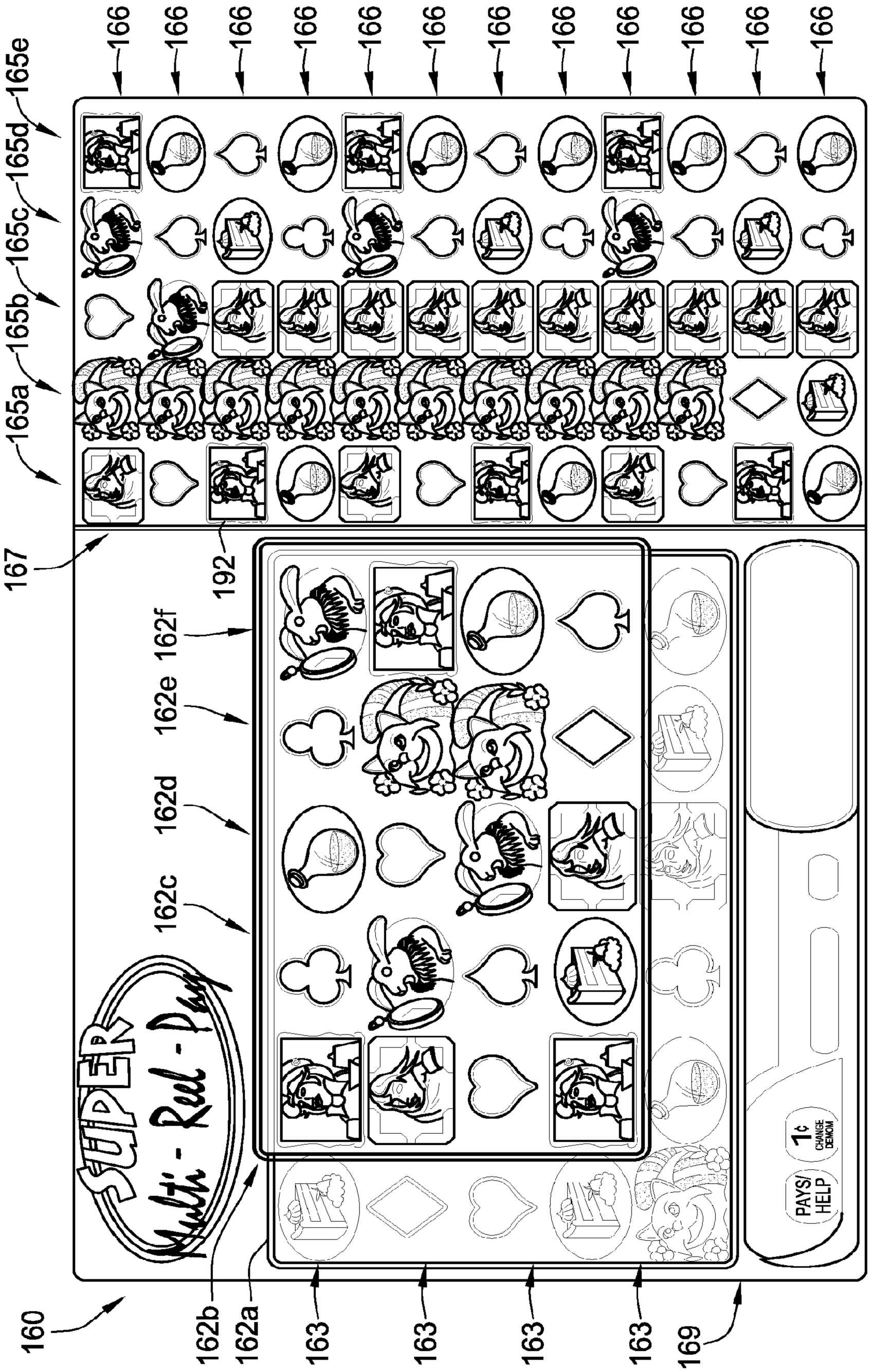
162a
166(4,1)
166(4,2)
166(1,1)
166(3,3)
166(3,4)
163
160
SUPER
Multi - Rul - P
PAYS/
HELP
1¢
CHANGE
DENOM

FIG. 10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165e
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165b
165a
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192
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162d
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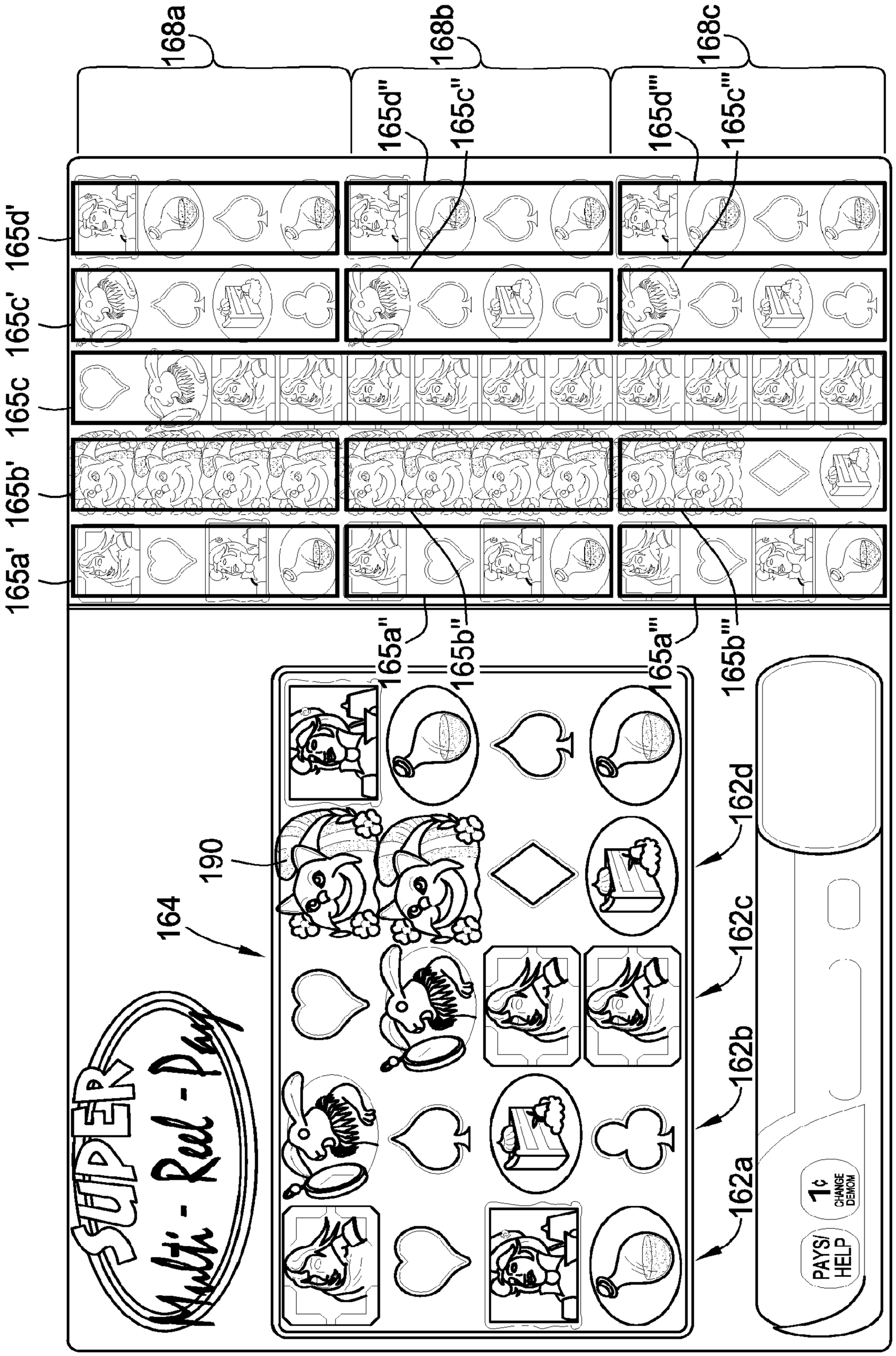
169
160
PAYS/ HELP
1¢ CHANGE DENOM

FIG. 11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165d"
165c"
165d'"
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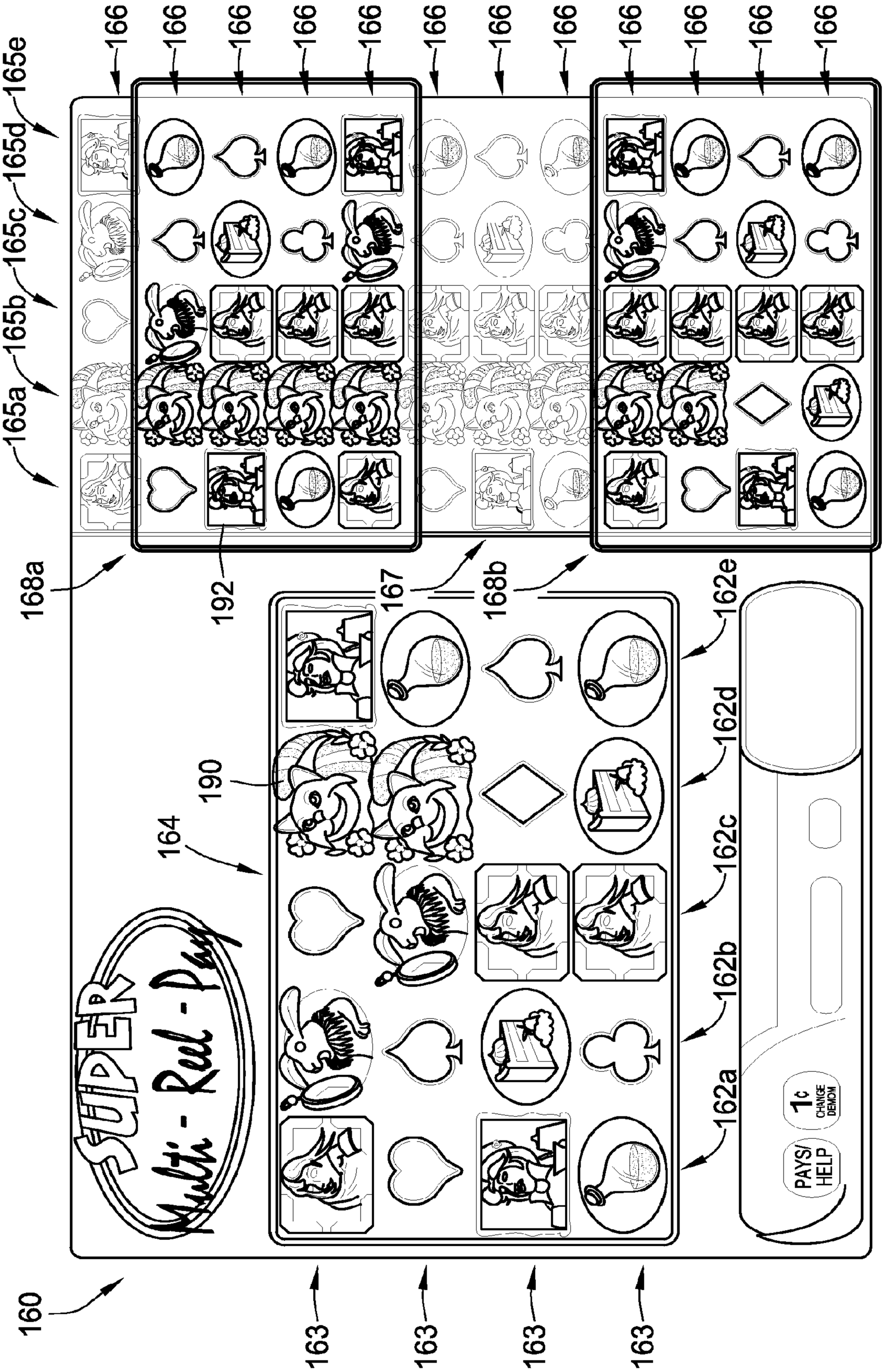
165b"
165a'"
165b'"
190
164
162d
162c
162b
162a
SUPER
Multi - Rel - Play
PAYS/
HELP
1¢
CHANGE
DEMON

FIG. 12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165c
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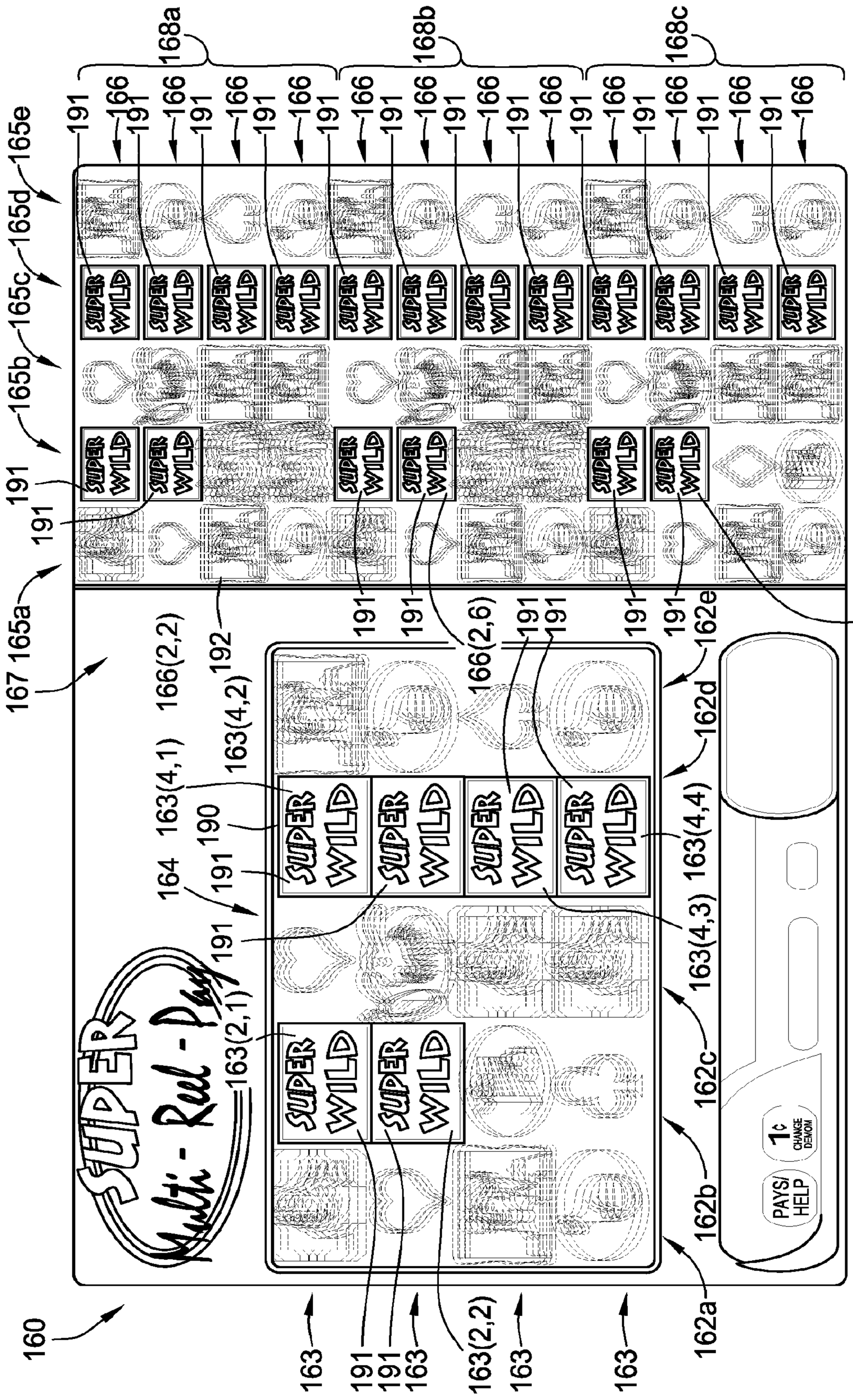
167
168b
162e
162d
162c
162b
162a
190
164
160
163
SUPER
Multi - Rul - Play
PAYS/ HELP
1¢ CHANGE DEMOM

FIG. 13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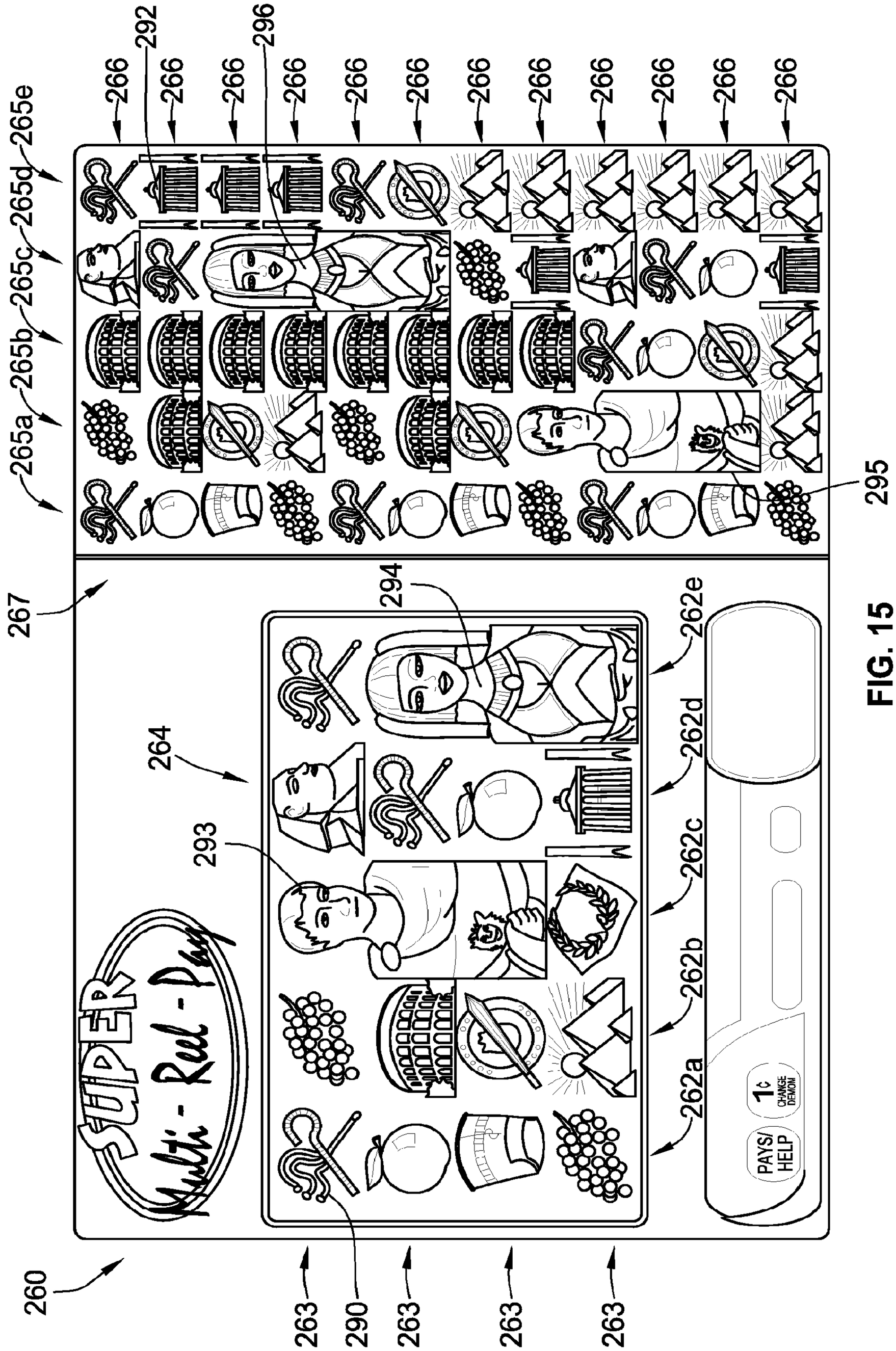
168b
168c
191
166
165e
165d
165c
165b
SUPER WILD
167
165a
166(2,2)
192
163(4,2)
166(2,6)
163(4,1)
164
190
162e
162d
166(2,10)
163(4,4)
SUPER
Multi - Rel - Play
163(2,1)
163(4,3)
162c
162b
162a
160
163
163(2,2)
PAYS/ HELP
1¢ CHANGE DENOM

FIG. 14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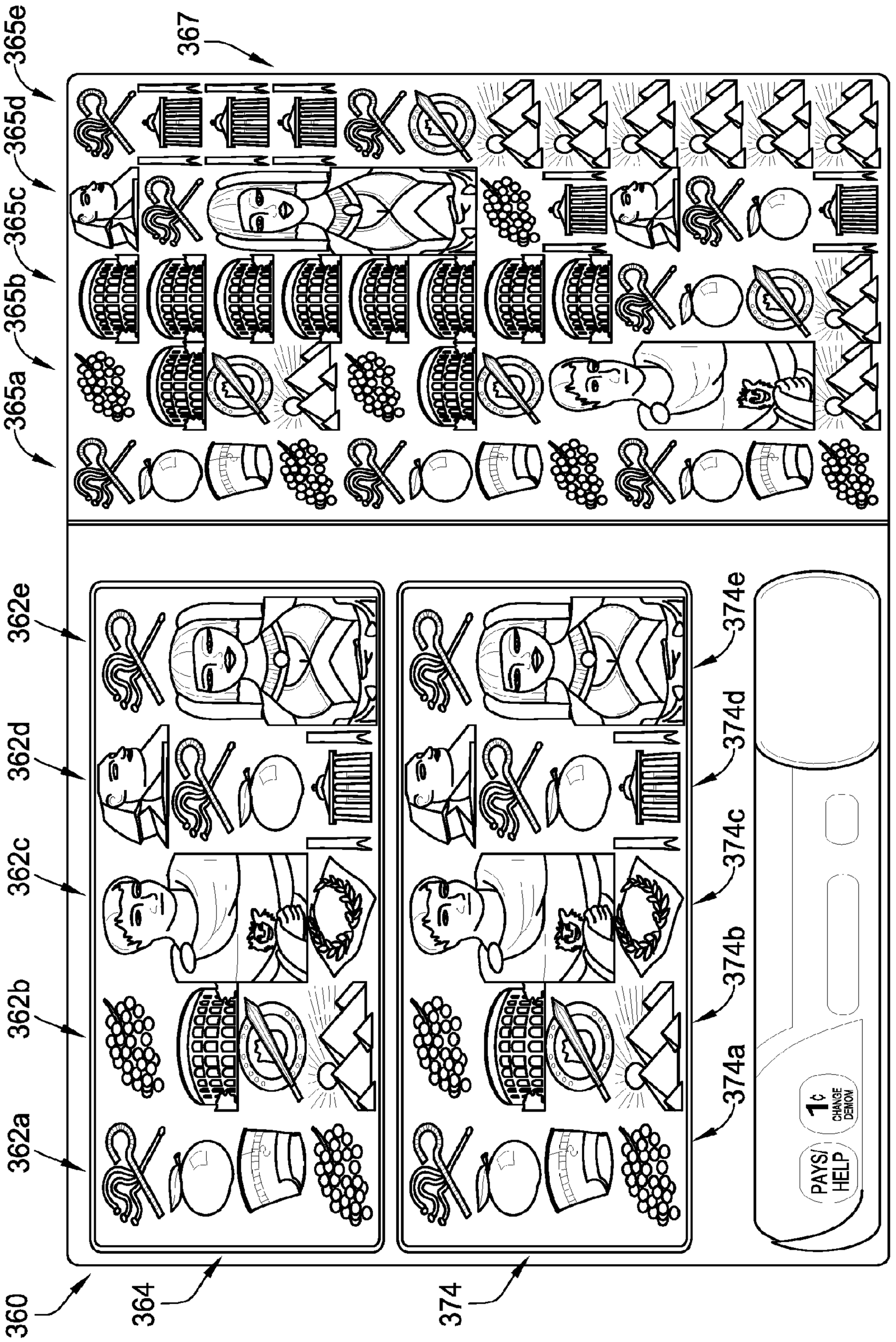
265a
265b
265c
265d
265e
266
262a
262b
262c
262d
262e
SUPER
Multi - Rel - Pay
PAYS/
HELP
1¢
CHANGE
DENOM

FIG. 15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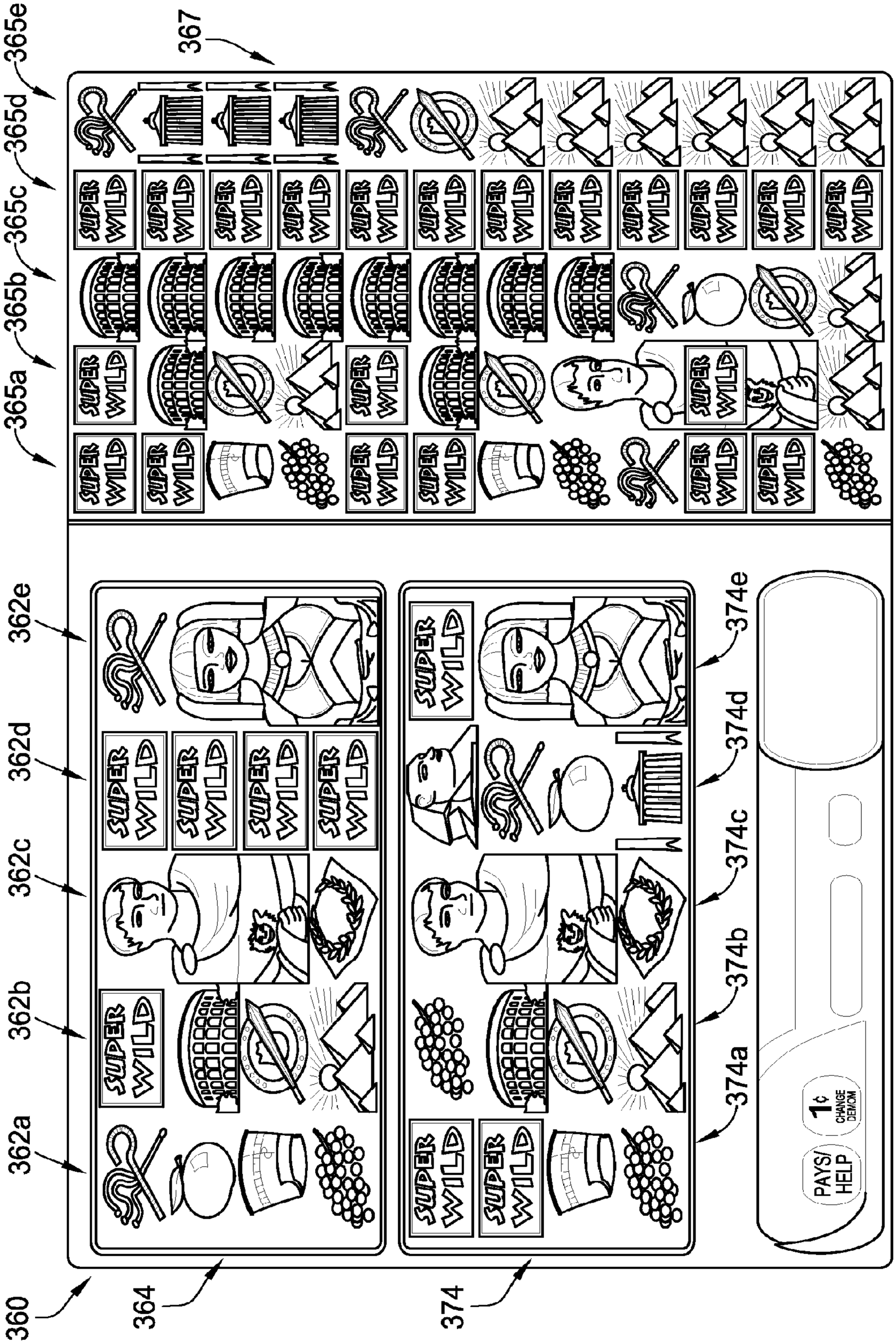
374c
374d
374e
PAYS/
HELP
1¢
CHANGE
DEMOW

FIG. 16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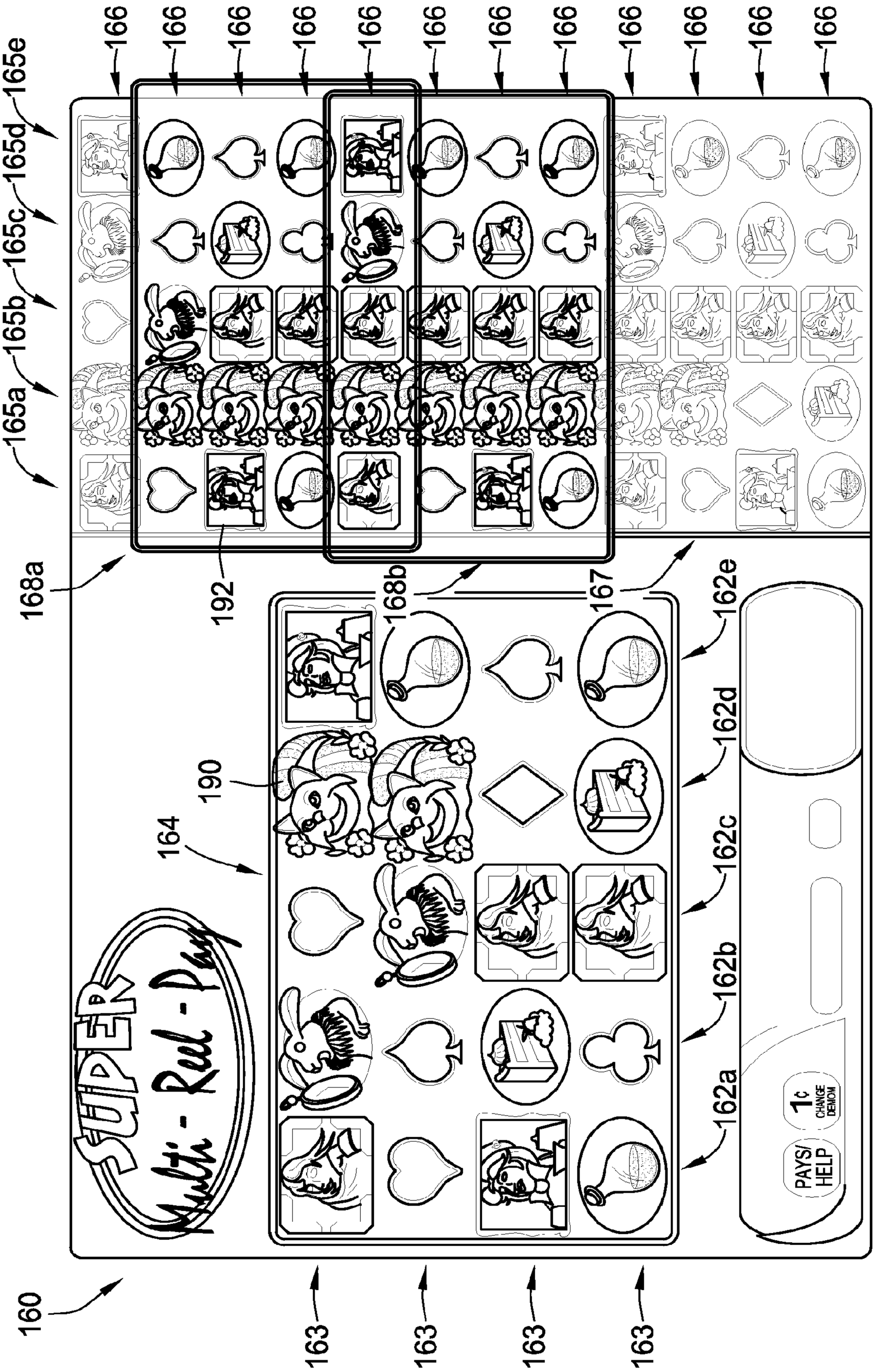
374d
374e
SUPER WILD
PAYS/ HELP
1¢ CHANGE DENOM

FIG. 17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165a
168a
192
168b
167
162e
162d
162c
162b
162a
190
164
SUPER
Multi - Rel - Play
PAYS/ HELP
1¢ CHANGE DEMOM
160
163
163
163
163

FIG. 18

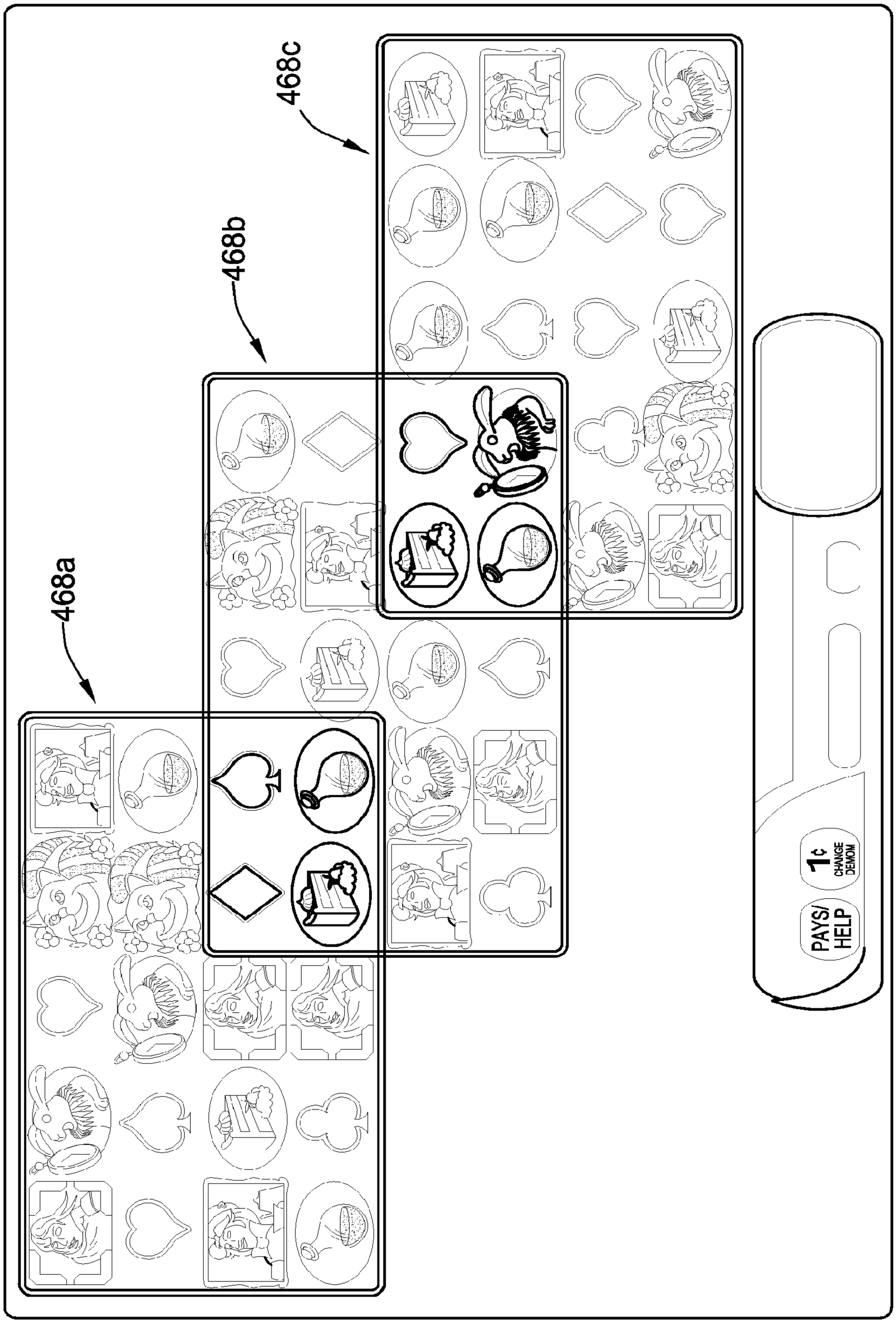

FIG. 19

WAGERING GAME INCLUDING MULTIPLE ARRAYS OF REEL SYMBOLS

REFERENCE TO RELATED APPLICATIONS

This application is related to and claims priority to U.S. Provisional Patent Application Ser. No. 61/413,383, filed Nov. 12, 2010, and titled "Wagering Game Including Multiple Arrays of Reel Symbols," which is incorporated herein by reference in its entirety.

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FIELD OF THE INVENTION

The present invention relates generally to a gaming apparatus, and methods for playing wagering games, and more particularly, to wagering games that present multiple reels that arrange symbols into multiple arrays to determine an outcome for the wagering game.

BACKGROUND OF THE INVENTION

Gaming terminals, such as slot machines, video poker machines and the like, have been a cornerstone of the gaming industry for several years. Generally, the popularity of such machines with players is dependent on the likelihood (or perceived likelihood) of winning money at the machine and the intrinsic entertainment value of the machine relative to other available gaming options. For example, slot machines or gaming terminals that simulate slot machines present players with a randomly determined array of symbols, and combinations of these symbols in the array are evaluated to determine the outcome of the game. Players perceive a greater likelihood of winning money and find greater entertainment value in such machines or terminals when a greater variety of winning symbol combinations are provided.

SUMMARY OF THE INVENTION

According to aspects of the present invention, wagering games present multiple reels that arrange symbols into multiple arrays to determine an outcome for the wagering game.

In one example embodiment, a gaming system displays, in response to a wager, a first array of symbols and a second array of symbols for a wagering game. The second array of symbols includes at least one second-array reel. The at least one second-array reel includes a predetermined sequence of symbols. The at least one second-array reel rotates the predetermined sequence of symbols to determine at least partially the second array of symbols. The second array is divided into at least two sub-arrays, the at least one second-array reel extending into the at least two sub-arrays. A controller selects at least one symbol from the first array and copies the at least one selected symbol into one or more positions in each of the at least two sub-arrays. The at least two sub-arrays is displayed with combinations of symbols including the at least one selected symbol. The controller evaluates the combinations of symbols in the at least two sub-arrays to determine an outcome to the wagering game. In some cases, the controller evaluates the combinations of symbols in the at least two sub-arrays according to one or more paylines in each sub-array, the one or more paylines being determined by a selection of corresponding one or more paylines in the first array.

In another example embodiment, a gaming system displays, in response to a wager, a first array of symbols and a second array of symbols for a wagering game. The first array of symbols includes a number of columns and a number of rows. The first array includes at least one special symbol that extends across more than one row. A controller responds to the at least one special symbol in the first array and modifies at least one combination of symbols in the second array. The controller evaluates the combinations of symbols in the second array to determine an outcome to the wagering game.

Additional aspects of the invention will be apparent to those of ordinary skill in the art in view of the detailed description of various embodiments, which is made with reference to the drawings, a brief description of which is provided below.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a free-standing gaming terminal.

FIG. **2** is a schematic view of a gaming system.

FIG. **3** is an image of an exemplary basic-game screen of a wagering game displayed on a gaming terminal.

FIGS. **4-19** are images of exemplary game screens according to aspects of the present invention.

While the invention is susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and will be described in detail herein. It should be understood, however, that the invention is not intended to be limited to the particular forms disclosed. Rather, the invention is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the invention as defined by the appended claims.

DETAILED DESCRIPTION

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail preferred embodiments of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspect of the invention to the embodiments illustrated.

Referring to FIG. **1**, there is shown a gaming terminal **10** similar to those used in gaming establishments, such as casinos. With regard to the present invention, the gaming terminal **10** may be any type of gaming terminal and may have varying structures and methods of operation. For example, in some aspects, the gaming terminal **10** is an electromechanical gaming terminal configured to play mechanical slots, whereas in other aspects, the gaming terminal is an electronic gaming terminal configured to play a video casino game, such as slots, keno, poker, blackjack, roulette, craps, etc. It should be understood that although the gaming terminal **10** is shown as a free-standing terminal of the upright type, the gaming terminal is readily amenable to implementation in a wide variety of other forms such as a free-standing terminal of the slant-top type, a portable or handheld device primarily used for gaming, such as is disclosed by way of example in PCT Patent Application No. PCT/US2007/000792 filed Jan. 11, 2007, titled "Handheld Device for Wagering Games," which is incorporated herein by reference in its entirety, a mobile

telecommunications device such as a mobile telephone or personal digital assistant (PDA), a counter-top or bar-top gaming terminal, or other personal electronic device, such as a portable television, MP3 player, entertainment device, etcetera.

The gaming terminal **10** illustrated in FIG. **1** comprises a cabinet or housing **12**. For output devices, this embodiment of the gaming terminal **10** includes a primary display area **14**, a secondary display area **16**, and one or more audio speakers **18**. The primary display area **14** and/or secondary display area **16** variously displays information associated with wagering games, non-wagering games, community games, progressives, advertisements, services, premium entertainment, text messaging, emails, alerts or announcements, broadcast information, subscription information, etc. appropriate to the particular mode(s) of operation of the gaming terminal. For input devices, the gaming terminal **10** illustrated in FIG. **1** includes a bill validator **20**, a coin acceptor **22**, one or more information readers **24**, one or more player-input devices **26**, and one or more player-accessible ports **28** (e.g., an audio output jack for headphones, a video headset jack, a wireless transmitter/receiver, etc.). While these typical components found in the gaming terminal **10** are described below, it should be understood that numerous other peripheral devices and other elements exist and are readily utilizable in any number of combinations to create various forms of a gaming terminal in accord with the present concepts.

The primary display area **14** include, in various aspects of the present concepts, a mechanical-reel display, a video display, or a combination thereof in which a transmissive video display is disposed in front of the mechanical-reel display to portray a video image in superposition over the mechanical-reel display. Further information concerning the latter construction is disclosed in U.S. Pat. No. 6,517,433 to Loose et al. entitled "Reel Spinning Slot Machine With Superimposed Video Image," which is incorporated herein by reference in its entirety. The video display is, in various embodiments, a cathode ray tube (CRT), a high-resolution liquid crystal display (LCD), a plasma display, a light emitting diode (LED), a DLP projection display, an electroluminescent (EL) panel, or any other type of display suitable for use in the gaming terminal **10**, or other form factor, such as is shown by way of example in FIG. **1**. The primary display area **14** includes, in relation to many aspects of wagering games conducted on the gaming terminal **10**, one or more paylines **30** (see FIG. **3**) extending along a portion of the primary display area. In the illustrated embodiment of FIG. **1**, the primary display area **14** comprises a plurality of mechanical reels **32** and a video display **34**, such as a transmissive display (or a reflected image arrangement in other embodiments), in front of the mechanical reels **32**. If the wagering game conducted via the gaming terminal **10** relies upon the video display **34** only and not the mechanical reels **32**, the mechanical reels **32** are optionally removed from the interior of the terminal and the video display **34** is advantageously of a non-transmissive type. Similarly, if the wagering game conducted via the gaming terminal **10** relies only upon the mechanical reels **32**, but not the video display **34**, the video display **34** depicted in FIG. **1** is replaced with a conventional glass panel. Further, in still other embodiments, the video display **34** is disposed to overlay another video display, rather than a mechanical-reel display, such that the primary display area **14** includes layered or superimposed video displays. In yet other embodiments, the mechanical-reel display of the above-noted embodiments is replaced with another mechanical or physical member or members such as, but not limited to, a mechanical wheel (e.g., a roulette game), dice, a pachinko board, or a diorama presenting a three-dimensional model of a game environment.

Video images in the primary display area **14** and/or the secondary display area **16** are rendered in two-dimensional (e.g., using Flash Macromedia™) or three-dimensional graphics (e.g., using Renderware™). In various aspects, the video images are played back (e.g., from a recording stored on the gaming terminal **10**), streamed (e.g., from a gaming network), or received as a TV signal (e.g., either broadcast or via cable) and such images can take different forms, such as animated images, computer-generated images, or "real-life" images, either prerecorded (e.g., in the case of marketing/promotional material) or as live footage. The format of the video images can include any format including, but not limited to, an analog format, a standard digital format, or a high-definition (HD) digital format.

The player-input or user-input device(s) **26** include, by way of example, a plurality of buttons **36** on a button panel, as shown in FIG. **1**, a mouse, a joy stick, a switch, a microphone, and/or a touch screen **38** mounted over the primary display area **14** and/or the secondary display area **16** and having one or more soft touch keys **40**, as is also shown in FIG. **1**. In still other aspects, the player-input devices **26** comprise technologies that do not rely upon physical contact between the player and the gaming terminal, such as speech-recognition technology, gesture-sensing technology, eye-tracking technology, etc. The player-input or user-input device(s) **26** thus accept(s) player input(s) and transforms the player input(s) to electronic data signals indicative of a player input or inputs corresponding to an enabled feature for such input(s) at a time of activation (e.g., pressing a "Max Bet" button or soft key to indicate a player's desire to place a maximum wager to play the wagering game). The input(s), once transformed into electronic data signals, are output to a CPU or controller **42** (see FIG. **2**) for processing. The electronic data signals are selected from a group consisting essentially of an electrical current, an electrical voltage, an electrical charge, an optical signal, an optical element, a magnetic signal, and a magnetic element.

The information reader **24** (or information reader/writer) is preferably located on the front of the housing **12** and comprises, in at least some forms, a ticket reader, card reader, bar code scanner, wireless transceiver (e.g., RFID, Bluetooth, etc.), biometric reader, or computer-readable-storage-medium interface. As noted, the information reader may comprise a physical and/or electronic writing element to permit writing to a ticket, a card, or computer-readable-storage-medium. The information reader **24** permits information to be transmitted from a portable medium (e.g., ticket, voucher, coupon, casino card, smart card, debit card, credit card, etc.) to the information reader **24** to enable the gaming terminal **10** or associated external system to access an account associated with cashless gaming, to facilitate player tracking or game customization, to retrieve a saved-game state, to store a current-game state, to cause data transfer, and/or to facilitate access to casino services, such as is more fully disclosed, by way of example, in U.S. Patent Publication No. 2003/0045354, published on Mar. 6, 2003, entitled "Portable Data Unit for Communicating With Gaming Machine Over Wireless Link," which is incorporated herein by reference in its entirety. The noted account associated with cashless gaming is, in some aspects of the present concepts, stored at an external system **46** (see FIG. **2**) as more fully disclosed in U.S. Pat. No. 6,280,328 to Holch et al. entitled "Cashless Computerized Video Game System and Method," which is incorporated herein by reference in its entirety, or is alternatively stored directly on the portable storage medium. Various security

protocols or features can be used to enhance security of the portable storage medium. For example, in some aspects, the individual carrying the portable storage medium is required to enter a secondary independent authenticator (e.g., password, PIN number, biometric, etc.) to access the account stored on the portable storage medium.

Turning now to FIG. **2**, the various components of the gaming terminal **10** are controlled by one or more processors (e.g., CPU, distributed processors, etc.) **42**, also referred to herein generally as a controller (e.g., microcontroller, microprocessor, etc.). The controller **42** can include any suitable processor(s), such as an Intel® Pentium processor, Intel® Core 2 Duo processor, AMD Opteron™ processor, or UltraSPARC® processor. By way of example, the controller **42** includes a plurality of microprocessors including a master processor, a slave processor, and a secondary or parallel processor. Controller **42**, as used herein, comprises any combination of hardware, software, and/or firmware disposed in and/or disposed outside of the gaming terminal **10** that is configured to communicate with and/or control the transfer of data between the gaming terminal **10** and a bus, another computer, processor, or device and/or a service and/or a network. The controller **42** comprises one or more controllers or processors and such one or more controllers or processors need not be disposed proximal to one another and may be located in different devices and/or in different locations. For example, a first processor is disposed proximate a user interface device (e.g., a push button panel, a touch screen display, etc.) and a second processor is disposed remotely from the first processor, the first and second processors being electrically connected through a network. As another example, the first processor is disposed in a first enclosure (e.g., a gaming machine) and a second processor is disposed in a second enclosure (e.g., a server) separate from the first enclosure, the first and second processors being communicatively connected through a network. The controller **42** is operable to execute all of the various gaming methods and other processes disclosed herein.

To provide gaming functions, the controller **42** executes one or more game programs comprising machine-executable instructions stored in local and/or remote computer-readable data storage media (e.g., memory **44** or other suitable storage device). The term computer-readable data storage media, or "computer-readable medium," as used herein refers to any media/medium that participates in providing instructions to controller **42** for execution. The computer-readable medium comprises, in at least some exemplary forms, non-volatile media (e.g., optical disks, magnetic disks, etc.), volatile media (e.g., dynamic memory, RAM), and transmission media (e.g., coaxial cables, copper wire, fiber optics, radio frequency (RF) data communication, infrared (IR) data communication, etc). Common forms of computer-readable media include, for example, a hard disk, magnetic tape (or other magnetic medium), a 2-D or 3-D optical disc (e.g., a CD-ROM, DVD, etc.), RAM, PROM, EPROM, FLASH-EPROM, any other memory chip or solid state digital data storage device, a carrier wave, or any other medium from which a computer can read. By way of example, a plurality of storage media or devices are provided, a first storage device being disposed proximate the user interface device and a second storage device being disposed remotely from the first storage device, wherein a network is connected intermediate the first one and second one of the storage devices.

Various forms of computer-readable media may be involved in carrying one or more sequences of one or more instructions to controller **42** for execution. By way of example, the instructions may initially be borne on a data storage device of a remote device (e.g., a remote computer, server, or system). The remote device can load the instructions into its dynamic memory and send the instructions over a telephone line or other communication path using a modem or other communication device appropriate to the communication path. A modem or other communication device local to the gaming machine **10** or to an external system **46** associated with the gaming machine can receive the data on the telephone line or conveyed through the communication path (e.g., via external systems interface **58**) and output the data to a bus, which transmits the data to the system memory **44** associated with the processor **42**, from which system memory the processor retrieves and executes the instructions.

Thus, the controller **42** is able to send and receive data, via carrier signals, through the network(s), network link, and communication interface. The data includes, in various examples, instructions, commands, program code, player data, and game data. As to the game data, in at least some aspects of the present concepts, the controller **42** uses a local random number generator (RNG) to randomly generate a wagering game outcome from a plurality of possible outcomes. Alternatively, the outcome is centrally determined using either an RNG or pooling scheme at a remote controller included, for example, within the external system **46**.

As shown in the example of FIG. **2**, the controller **42** is coupled to the system memory **44**. The system memory **44** is shown to comprise a volatile memory (e.g., a random-access memory (RAM)) and a non-volatile memory (e.g., an EEPROM), but optionally includes multiple RAM and multiple program memories.

As shown in the example of FIG. **2**, the controller **42** is also coupled to a money/credit detector **48**. The money/credit detector **48** is configured to output a signal the controller **42** that money and/or credits have been input via one or more value-input devices, such as the bill validator **20**, coin acceptor **22**, or via other sources, such as a cashless gaming account, etc. The value-input device(s) is integrated with the housing **12** of the gaming terminal **10** and is connected to the remainder of the components of the gaming terminal **10**, as appropriate, via a wired connection, such as I/O **56**, or wireless connection. The money/credit detector **48** detects the input of valid funds into the gaming terminal **10** (e.g., via currency, electronic funds, ticket, card, etc.) via the value-input device(s) and outputs a signal to the controller **42** carrying data regarding the input value of the valid funds. The controller **42** extracts the data from these signals from the money/credit detector **48**, analyzes the associated data, and transforms the data corresponding to the input value into an equivalent credit balance that is available to the player for subsequent wagers on the gaming terminal **10**, such transforming of the data being effected by software, hardware, and/or firmware configured to associate the input value to an equivalent credit value. Where the input value is already in a credit value form, such as in a cashless gaming account having stored therein a credit value, the wager is simply deducted from the available credit balance.

As seen in FIG. **2**, the controller **42** is also connected to, and controls, the primary display area **14**, the player-input device(s) **26**, and a payoff mechanism **50**. The payoff mechanism **50** is operable in response to instructions from the controller **42** to award a payoff to the player in response to certain winning outcomes that occur in the base game, the bonus game(s), or via an external game or event. The payoff is provided in the form of money, credits, redeemable points, advancement within a game, access to special features within a game, services, another exchangeable media, or any combination thereof. Although payoffs may be paid out in coins and/or

currency bills, payoffs are alternatively associated with a coded ticket (from a ticket printer **52**), a portable storage medium or device (e.g., a card magnetic strip), or are transferred to or transmitted to a designated player account. The payoff amounts distributed by the payoff mechanism **50** are determined by one or more pay tables stored in the system memory **44**.

Communications between the controller **42** and both the peripheral components of the gaming terminal **10** and the external system **46** occur through input/output (I/O) circuit **56**, which can include any suitable bus technologies, such as an AGTL+ frontside bus and a PCI backside bus. Although the I/O circuit **56** is shown as a single block, it should be appreciated that the I/O circuit **56** alternatively includes a number of different types of I/O circuits. Furthermore, in some embodiments, the components of the gaming terminal **10** can be interconnected according to any suitable interconnection architecture (e.g., directly connected, hypercube, etc.).

The I/O circuit **56** is connected to an external system interface or communication device **58**, which is connected to the external system **46**. The controller **42** communicates with the external system **46** via the external system interface **58** and a communication path (e.g., serial, parallel, IR, RC, 10 bT, near field, etc.). The external system **46** includes, in various aspects, a gaming network, other gaming terminals, a gaming server, a remote controller, communications hardware, or a variety of other interfaced systems or components, in any combination. In yet other aspects, the external system **46** may comprise a player's portable electronic device (e.g., cellular phone, electronic wallet, etc.) and the external system interface **58** is configured to facilitate wireless communication and data transfer between the portable electronic device and the controller **42**, such as by a near field communication path operating via magnetic field induction or a frequency-hopping spread spectrum RF signals (e.g., Bluetooth, etc.).

The gaming terminal **10** optionally communicates with external system **46** (in a wired or wireless manner) such that each terminal operates as a "thin client" having relatively less functionality, a "thick client" having relatively more functionality, or with any range of functionality therebetween (e.g., an "intermediate client"). In general, a wagering game includes an RNG for generating a random number, game logic for determining the outcome based on the randomly generated number, and game assets (e.g., art, sound, etc.) for presenting the determined outcome to a player in an audio-visual manner. The RNG, game logic, and game assets are contained within the gaming terminal **10** ("thick client" gaming terminal), the external systems **46** ("thin client" gaming terminal), or are distributed therebetween in any suitable manner ("intermediate client" gaming terminal).

Referring now to FIG. **3**, an image of a basic-game screen **60** adapted to be displayed on the primary display area **14** is illustrated. A player begins play of a basic wagering game by providing a wager. A player can operate or interact with the wagering game using the one or more player-input devices **26**. The controller **42**, the external system **46**, or both, in alternative embodiments, operate(s) to execute a wagering game program causing the primary display area **14** to display the wagering game that includes a plurality of visual elements.

In accord with various methods of conducting a wagering game on a gaming system in accord with the present concepts, the wagering game includes a game sequence in which a player makes a wager, such as through the money/credit detector **48**, touch screen **38** soft key, button panel, or the like, and a wagering game outcome is associated with the wager. The wagering game outcome is then revealed to the player in due course following initiation of the wagering game. The method comprises the acts of conducting the wagering game using a gaming apparatus, such as the gaming terminal **10** depicted in FIG. **1**, following receipt of an input from the player to initiate the wagering game. The gaming terminal **10** then communicates the wagering game outcome to the player via one or more output devices (e.g., primary display **14**) through the display of information such as, but not limited to, text, graphics, text and graphics, static images, moving images, etc., or any combination thereof. In accord with the method of conducting the wagering game, the controller **42**, which comprises one or more processors, transforms a physical player input, such as a player's pressing of a "Spin Reels" soft key **84** (see FIG. **3**), into an electronic data signal indicative of an instruction relating to the wagering game (e.g., an electronic data signal bearing data on a wager amount).

In the aforementioned method, for each data signal, the controller **42** is configured to processes the electronic data signal, to interpret the data signal (e.g., data signals corresponding to a wager input), and to cause further actions associated with the interpretation of the signal in accord with computer instructions relating to such further actions executed by the controller. As one example, the controller **42** causes the recording of a digital representation of the wager in one or more storage devices (e.g., system memory **44** or a memory associated with an external system **46**), the controller, in accord with associated computer instructions, causing the changing of a state of the data storage device from a first state to a second state. This change in state is, for example, effected by changing a magnetization pattern on a magnetically coated surface of a magnetic storage device or changing a magnetic state of a ferromagnetic surface of a magneto-optical disc storage device, a change in state of transistors or capacitors in a volatile or a non-volatile semiconductor memory (e.g., DRAM), etc.). The noted second state of the data storage device comprises storage in the storage device of data representing the electronic data signal from the controller (e.g., the wager in the present example). As another example, the controller **42** further, in accord with the execution of the instructions relating to the wagering game, causes the primary display **14** or other display device and/or other output device (e.g., speakers, lights, communication device, etc.), to change from a first state to at least a second state, wherein the second state of the primary display comprises a visual representation of the physical player input (e.g., an acknowledgement to a player), information relating to the physical player input (e.g., an indication of the wager amount), a game sequence, an outcome of the game sequence, or any combination thereof, wherein the game sequence in accord with the present concepts comprises acts described herein. The aforementioned executing of computer instructions relating to the wagering game is further conducted in accord with a random outcome (e.g., determined by the RNG) that is used by the controller **42** to determine the outcome of the game sequence, using a game logic for determining the outcome based on the randomly generated number. In at least some aspects, the controller **42** is configured to determine an outcome of the game sequence at least partially in response to the random parameter.

The basic-game screen **60** is displayed on the primary display area **14** or a portion thereof. In FIG. **3**, the basic-game screen **60** portrays a plurality of simulated movable reels **62***a-e*. Alternatively or additionally, the basic-game screen **60** portrays a plurality of mechanical reels or other video or mechanical presentation consistent with the game format and theme. The basic-game screen **60** also advantageously dis-

plays one or more game-session meters and various buttons adapted to be actuated by a player.

In the illustrated embodiment of FIG. **3**, the game-session meters include a "credit" meter **64** for displaying a number of credits available for play on the terminal; a "lines" meter **66** for displaying a number of paylines to be played by a player on the terminal; a "line bet" meter **68** for displaying a number of credits wagered (e.g., from 1 to 5 or more credits) for each of the number of paylines played; a "total bet" meter **70** for displaying a total number of credits wagered for the particular round of wagering; and a "paid" meter **72** for displaying an amount to be awarded based on the results of the particular round's wager. The depicted user-selectable buttons include a "collect" button **74** to collect the credits remaining in the credits meter **64**; a "help" button **76** for viewing instructions on how to play the wagering game; a "pay table" button **78** for viewing a pay table associated with the basic wagering game; a "select lines" button **80** for changing the number of paylines (displayed in the lines meter **66**) a player wishes to play; a "bet per line" button **82** for changing the amount of the wager which is displayed in the line-bet meter **68**; a "spin reels" button **84** for moving the reels **62***a-e*; and a "max bet spin" button **86** for wagering a maximum number of credits and moving the reels **62***a-e* of the basic wagering game. While the gaming terminal **10** allows for these types of player inputs, the present invention does not require them and can be used on gaming terminals having more, less, or different player inputs.

As shown in the example of FIG. **3**, paylines **30** extend from one of the payline indicators **88***a-i* on the left side of the basic-game screen **60** to a corresponding one of the payline indicators **88***a-i* on the right side of the screen **60**. A plurality of symbols **90** is displayed on the plurality of reels **62***a-e* to indicate possible outcomes of the basic wagering game. A winning combination occurs when the displayed symbols **90** correspond to one of the winning symbol combinations listed in a pay table stored in the memory **44** of the terminal **10** or in the external system **46**. The symbols **90** may include any appropriate graphical representation or animation, and may further include a "blank" symbol.

Symbol combinations are evaluated in accord with various schemes such as, but not limited to, "line pays" or "scatter pays." Line pays are evaluated left to right, right to left, top to bottom, bottom to top, or any combination thereof by evaluating the number, type, or order of symbols **90** appearing along an activated payline **30**. Scatter pays are evaluated without regard to position or paylines and only require that such combination appears anywhere on the reels **62***a-e*. While an embodiment with nine paylines is shown, a wagering game with no paylines, a single payline, or any plurality of paylines will also work with the present invention. Additionally, though an embodiment with five reels is shown in FIG. **3**, different embodiments of the gaming terminal **10** comprise a greater or lesser number of reels in accordance with the present invention.

FIG. **4** illustrates an image of a game screen **160** that is adapted to be displayed on a display area of the gaming terminal **10**. In response to a wager and inputs from a player via player-input devices **26**, the controller **42** and/or the external system **46** operate to execute a wagering game program that displays the game screen **160**.

As shown in FIG. **4**, the game screen **160** presents multiple reels that arrange symbols into multiple arrays. In particular, the game screen **160** presents a first set of simulated movable reels **162***a-e* and a second set of simulated movable reels **165***a-e*. The reels **162***a-e* include symbols **190** and the reels **165***a-e* include symbols **192**. The symbols **190** and **192** are consistent with a specific game theme, such as the theme shown in FIG. **4** based on the story of Alice in Wonderland. The game screen **160** presents four vertically-arranged symbol positions **163** for each of the first set of five reels **162***a-e*. Meanwhile, the game screen **160** presents twelve vertically-arranged symbol positions **166** for each of the second set of five reels **165***a-e*. Correspondingly, the first set of reels **162***a-e* presents the symbols **190** according to a first array **164** having five columns and four rows, i.e., a 5×4 configuration. The second set of reels **165***a-e* presents the symbols **192** according to a second array **167** having five columns and twelve rows, i.e., a 5×12 configuration. The second array **167** has a greater number of rows than the first array **164**. Although the first array **164** and second array **167** are described with these particular configurations, it is understood that alternative embodiments may employ array configurations with different numbers of columns and rows. In these alternative embodiments, the configurations may be randomly determined or may depend on the wager placed by the player.

Each of the reels **162***a-e* is associated with a particular sequence of symbols **190**, and each of the reels **164***a-e* is associated with a particular sequence of symbols **192**. In some embodiments, the sequence of symbols **190** is the same as the sequence of symbols **192**. In other embodiments, the sequence of symbols **190** is different from the sequence of symbols **192**. Because four symbols **190** are shown for each of the reels **162***a-e* and twelve symbols **192** are shown for each of the reels **165***a-e*, the sequence of symbols **192** for the reels **165***a-e* may be longer than the sequence of symbols **190** for the reels **162***a-e*. In general, each of the reels **162***a-e* and **165***a-e* is associated with one of any number of different sequences of symbols.

As shown in FIG. **5**, when the player initiates a wagering game, the reels **162***a-e* and **165***a-e* rotate according to their associated sequence of symbols. The reels **162***a-e* and **165***a-e* resemble the mechanically rotating reels of a conventional slot machine. Specifically, the game screen **160** shows the symbols **190** passing in sequence through the four symbol positions **163** for each of the reels **162***a-e*. Additionally, the game screen **160** shows the symbols **192** passing in sequence through the twelve symbol positions **166** for each of the reels **165***a-e*.

As illustrated in FIG. **6**, the reels **162***a-e* and **165***a-e* eventually stop rotating in the game screen **160**. Each of the reels **162***a-e* reveals four successive symbols **190** randomly selected from the associated sequence of symbols **190**. Each of the reels **165***a-e* reveals twelve successive symbols **192** randomly selected from the associated sequence of symbols **192**. The reels **162***a-e* and **164***a-e* may rotate at different random rates and/or stop at different random times so that a variety of symbol combinations are presented. Accordingly, the first array **164** and the second array **167** present a randomly selected combination of symbols **190**.

According to aspects of the present invention, selected symbols **191** appearing in the first array **164** are copied to one or more symbol positions **166** in the second array **167**. In effect, some symbols **192** initially appearing in the second array **167** are replaced by the selected symbols **191** appearing in the first array **164**. In some embodiments, a symbol **191** in the first array **164** is selected and copied if it is a particular type of symbol. For example, FIG. **6** shows that the symbols **191** are selected if they are "Super Wild" symbols. The "Super Wild" symbols appear in the positions **163**(column 2, row 1), **163**(2,2), **163**(4,1), **163**(4,2), **163**(4,3), and **163**(4,4) in the first array **164**. In this example, the "Super Wild" symbols appearing in the first array **164** are copied to corre-

sponding symbol positions **166** in the second array **167**. Likewise, other aspects of the present concepts contemplate a reverse mapping from one or more of the sub-arrays **168***a-c*, discussed below, to the first array **164**.

As shown further in FIG. **6**, the second array **167** is divided into three separate sub-arrays **168***a-c* having five columns and four rows, i.e., a 5×4 configuration. Because each of the sub-arrays **168***a-c* has a 5×4 configuration, there is a one-to-one mapping between each symbol position **163** in the first array **164** and a position **166** in each of the sub-arrays **168***a-c*. For example, the symbol position **163**(2,2) in the first array **164** is mapped to the symbol positions **166**(2,2), **166**(2,6), and **166**(2,10) in sub-arrays **168***a-c* in the second array **167**. Therefore, the "Super Wild" symbol appearing in position **163**(2,2) in the first array **164** is copied to positions **166**(2,2), **166**(2,6), and **166**(2,10) in the second array **167**. The other "Super Wild" symbols appearing in positions **163**(2,2), **163**(4,1), **163**(4,2), **163**(4,3), and **163**(4,4) are copied to corresponding positions **166** in the second array **167** in a similar manner. Although three sub-arrays **168***a-c* are shown, the present concepts include a greater of lesser number of sub-arrays (e.g., two sub-arrays, four sub-arrays, etc.). In some embodiments, the player may be required to place additional wagers to put each of the sub-arrays **168***a-c* into play.

Combinations of symbols **190** across the first array **164** and/or combinations of symbols **192** across the second array **167** are evaluated to determine the outcome of the wagering game. As discussed previously, for example, combinations of symbols may be evaluated according to various schemes such as, but not limited to, line pays or scatter pays. A winning combination occurs when the symbols displayed according to line pays, scatter pays, etc., correspond to one of the winning symbol combinations listed in a pay table stored in the memory **44** of the terminal **10** or in the external system **46**.

In general, the evaluation of symbol combinations in each sub-array **168***a-c* is independent of the other sub-arrays. However, the sub-arrays **168***a-c* are not independent of each other as the reels **165***a-e* and their associated sequence of symbols extend into or through the sub-arrays **168***a-c*.

The multiple arrays enable a greater variety of methods for presenting different symbol combinations to determine the outcome of the wagering game. For example, the player may place wagers on selected paylines in the first array **164** and the sub-arrays **169***a-c*. In one embodiment, the player may be required to select each payline in the first array **164** and the sub-arrays **168***a-c*, where an additional wager is required for each selected payline.

In another embodiment, the player selects paylines in the first array **164** and combinations of symbols are evaluated for the selected paylines in the first array **164** as well as corresponding paylines mapped to one or more of the sub-arrays **168***a-c*. As shown in FIG. **7**, the first array **164** is associated with payline indicators **188**. The player can select one or more paylines **130**, which extend from one of the payline indicators **188** on the left side of the first array **164** to a corresponding one of the payline indicators **188** on the right side of the first array **164**.

By way of example, FIG. **7** shows that the player has selected a payline **130** that corresponds to the second row of the first array **164**, i.e., positions **163**(1,2), **163**(2,2), **163**(3,2), **163**(4,2), and **163**(5,2). When the reels **162***a-e* and **165***a-e* stop spinning and the "Super Wild" symbols are copied from the first array **164** to the second array **167**, the wagering game evaluates the combination of symbols along the selected payline **130** of the first array **164** to determine whether it is a winning combination. In addition, based on the selection of the payline **130** in the first array **164**, corresponding paylines **130'**, **130"**, and **130'"** are automatically established in each of the sub-arrays **168***a-c*, respectively. As shown in FIG. **8**, based on the selection of the second row of the first array **164** as the payline **130**, the second row of each of the sub-arrays **168***a-c* are established as paylines **130'**, **130"**, and **130'"**. In sum, paylines selected in the first array **164** are correspondingly mirrored in the second array **167**, and these mirrored paylines are also evaluated for winning combinations.

In some embodiments, the player may be required to place additional wagers to put each of the sub-arrays **168***a-c* into play. For example, the player may place a wager to evaluate sub-array **168***b* for winning combinations. In this case, only the payline **130"** in addition to payline **130** are evaluated.

It is to be understood that the payline indicators **188** and payline **130** shown in FIG. **7** are only provided as examples. Any configuration of payline indicators **188** and paylines **130** may be available to permit the player to select one or more combinations/patterns of symbol positions that are used to determine the outcome of the wagering game.

In the examples illustrated in FIGS. **4-8**, each "Super Wild" symbol is a wild symbol that acts as any one of the possible symbols **190** and/or **192**. In particular, each "Super Wild" symbol acts as the symbol that is most advantageous when combined with a set of given symbols. Therefore, it is more advantageous to the user when more "Super Wild" symbols appear in the paylines. Accordingly, copying "Super Wild" symbols to additional positions in the sub-arrays **168***a-c* increases the number of "Super Wild" symbols potentially in play.

As shown in FIG. **6**, a plurality of "Super Wild" symbols may appear in succession, or clumps, in the sequence of symbols **190** rotated through the reels **162***a-c*. For example, the "Super Wild" symbols at positions **163**(4,1), **163**(4,2), **163**(4,3), and **163**(4,4) may be a part of a clump of "Super Wild" symbols for reel **164***d*. Such clumps of "Super Wild" symbols increase the number of "Super Wild" symbols that may appear in the array **167** and sub-arrays **168***a-c* at the same time.

Other approaches can be employed to increase the number of "Super Wild" symbols. For example, if a symbol known as a "Mega Wild" symbol appears in the first array **164**, the "Mega Wild" symbol distributes a plurality of additional "Super Wild" symbols to randomly selected positions **163** in the first array **164**. The number of additional "Super Wild" symbols may be predetermined, randomly determined, or determined with an aspect of game play, such as the wager level or the number of selected paylines. These additional "Super Wild" symbols distributed by the "Mega Wild" symbol are also copied from the positions **163** in the first array **164** to corresponding positions **166** in the second array **167** according to a one-to-one mapping between the first array **164** and the sub-arrays **168***a-c*. In some embodiments, an enhanced probability of realizing "Mega Wilds" may be purchased with an additional wager.

In the embodiments of FIGS. **4-8**, when the player begins play of the wagering game, the player triggers the simultaneous rotation of the reels **162***a-e* and **165***a-e*. Once the reels **162***a-e* and **165***a-e* stop, the selected symbols **191**, e.g., "Super Wild" symbols, are then copied from the first array **164** to the sub-arrays **168***a-c* and the resulting combinations are evaluated. To provide visual entertainment and enhance the player's excitement, animation or other visual effects may be employed to highlight that selected symbols **191** are being copied to the sub-arrays **168***a-c*. In an alternative embodiment, when the player begins play of the wagering game, the reels **162***a-e* rotate while the reels **165***a-e* remain stationary. When the reels **162***a-e* stop, the selected symbols **191**, e.g.,

"Super Wild" symbols, from the first array **164** are copied to corresponding positions in the sub-arrays **168***a-c*. As shown in FIG. **9**, the copied symbols **191** are fixed in their positions **166** while the reels **165***a-e* rotate symbols through the other positions **166** in the second array **167**. The copied symbols **191** become a part of the combination of symbols **192** in the second array **167**. Once the reels **165***a-e* stop rotating, the resulting combinations of symbols across the reels **162***a-e* and **165***a-e* are evaluated to determine the outcome of the wagering game.

In the examples above, the symbols **191** are copied from the first array **164** to the second array **167** according to a one-to-one mapping between the first array **164** and the sub-arrays **168***a-c*. However, it is understood that a symbol **191** in the first array **164** may be selected and copied to one or more positions in the second array **167** without requiring a one-to-one mapping. For example, a selected symbol **191** in the first array **164** may be copied to one or more random positions **166** in each of the sub-arrays **168***a-c*.

Moreover, in the examples illustrated in FIGS. **4-9**, the symbols **191** are copied from the first array **164** to the second array **167** if they are a particular type of symbol, i.e., if they are "Super Wild" symbols. In other embodiments, however, the symbols **191** are copied from the first array **164** to the second array **167** if they appear in particular positions in the first array **164**. For example, the player may interactively select, via player-input devices **26**, a number of positions in the array **164**. Alternatively, the controller **42** may randomly select a number of positions in the array **164**. After the reels **162***a-e* are rotated, the symbols that randomly appear in the positions selected by the player or controller are copied to the corresponding positions in the sub-arrays **168***a-c*. As shown in FIG. **10**, the player or controller **142** selects five positions **166**(1,1), **166**(3,3), **166**(3,4), **166**(4,1), and **166**(4,2). Each of the five selected positions are highlighted by a bright rectangle or other graphical feature. When the reels **164***a-e* stop rotating, the randomly selected symbols in **166**(1,1), **166**(3,3), **166**(3,4), **166**(4,1), and **166**(4,2) are copied to the corresponding sub-arrays **168***a-c* according to the one-to-one mapping. Of course, embodiments are not limited to selecting five positions in the array **164**. In some cases, the number of positions selected by the player or controller **42** may be randomly determined or depend on the wager placed by the player.

Moreover, some embodiments only copy the symbols if they appear in the selected positions and if the symbols are a particular type of symbol. For example, the controller **42** only copies the symbols in the selected positions if they are also "Super Wild" symbols. In this example, a greater wager allows the selection of more positions to increase the chances that a "Super Wild" symbol will appear in a selected position and be advantageously copied to the sub-arrays **168***a-c*.

It is noted that if the symbols appearing in the selected positions are copied to the second array **167** without regard to the symbol type, there is a risk that the copied symbol will produce a disadvantageous result. In other words, an otherwise winning combination of symbols in the second array **167** may be converted into a non-winning combination when one of the symbols is replaced by a symbol from the first array **164**. Therefore, such a disadvantageous result is prevented if the copied symbols are always some type of wild symbol.

Alternatively, in some embodiments, the controller **42** only copies a symbol into the second array **167** if the copying produces an advantageous result. In other embodiments, the player may be required to employ some skill and decide whether or not a symbol is copied to the second array **167**.

As described above, a selected symbol **191**, such as a wild symbol, may be copied from the first array **164** to a given position in only one of the sub-arrays. In some cases, this selected symbol **191** may not provide any benefit to the symbols in the one array, i.e., the combination of symbols along the paylines in that sub-array are not improved. However, in some cases, the combination of symbols along the paylines in the one of the other sub-arrays would be improved if the selected symbol **191** were copied to that other sub-array instead. Accordingly, in some embodiments, the player may be permitted to swap the sub-arrays **168***a-c* to achieve more advantageous symbol combinations with the symbols copied from the first array **164**. For example, if a "Super Wild" in a particular position in the second array **167** does not provide a winning combination with the symbols of sub-array **168***b*, the player may be permitted to move sub-array **168***c* into the initial position of the sub-array **168***b* to benefit from the "Super Wild" symbol. To enable this feature, an additional wager may be required before the reels are triggered.

According to an alternative embodiment, FIG. **11** shows that the first array **164** is selected from a larger array **169**. In other words, the symbols **190** in the first array **164** are a subset of the symbols **190** in the larger array **169**. The first array **164** is highlighted by a bright rectangle or other graphical feature. In FIG. **11**, the larger array **169** includes 6 columns and 5 rows, i.e., a 6×5 configuration. The five columns and four rows of the first array **164** are selected from the six columns and five rows of the larger array **169**, respectively. In other embodiments, the larger array **169** may have any number of columns and rows as long as the first array **164** can be selected from the larger array **169**. The player may interactively select, via player-input devices **26**, the first array **164** from the larger array **169**. Alternatively, the controller **42** may randomly select the first array **164** from the larger array **169**. The size of the first array **164** may also be selected by the player or the controller **42** and may depend on the wager placed by the player. In operation, a player-input device **26** may allow the player to select a position in an array and drag a pointer to make a box that defines the first array **164**.

As shown in FIG. **11**, four of the symbols **190** in each of the five reels **162***b-f* are included in the first array **164**. In operation, however, all six reels **162***a-f* rotate successive symbols **190** through all five rows. The player is able to see whether the position of the first array **164** in the larger array **169** was more advantageous than the other possible positions. Once the six reels **162***a-f* have stopped rotating, the first array **164** is processed and evaluated as described above.

Referring to FIG. **12**, it is to be understood that all reels do not have to extend through the entire second array **167** as shown in the previous embodiments. In particular, FIG. **12** shows that only the reel **165***c* extends through the entire second array **167**. The sub-arrays **168***a-c* share a common reel, but each of the sub-arrays **168***a-c* has a set of four other reels that are independent of the other sub-arrays **168***a-c*. The sub-array **168***a* includes reels **165***a*', b', d', e' which are independent of the sub-arrays **168***b, c*. The sub-array **168***b* includes reels **165***a*", b", d", e" which are independent of the sub-arrays **168***a, c*. The sub-array **168***c* includes reels **165***a*'", b'", d", e'" which are independent of the sub-arrays **168***a, b*. Other combinations of shared and independent reels for sub-arrays are contemplated according to embodiments of the present invention. By way of example, one or more of the symbol positions **166** (e.g., all symbol positions) may comprise a separate reel.

Because the second array **167** described above has a 5×12 configuration, the second array **167** can be divided evenly into the three sub-arrays **168***a-c*, which have a 5×4 configuration.

However, as shown in FIG. **13**, the second array **167** does not have to be divided evenly into three sub-arrays **168***a-c*. Rather, two non-overlapping sub-arrays **168***a, b* can be selected from different sections of the second array **167**. In FIG. **13**, the second through fifth rows of the second array **167** are selected to define the first sub-array **168***a*. and the ninth through twelfth rows of the second array **167** are selected to define the second sub-array **168***b*. The two selected sub-arrays **168***a, b* are each highlighted by a bright rectangle or other graphical feature. The player may interactively select, via player-input devices **26**, the sub-arrays **168***a,b* from the second array **167**. Alternatively, the controller **42** may randomly select the sub-arrays **168***a,b* from the second array **167**. Although FIG. **13** illustrates the selection of two 5×4 sub-arrays **138***a, b* from a 5×12 array **167**, it is understood that other embodiments may allow any number of sub-arrays of any size to be selected from a second array of a larger size. The selected size(s) in these other embodiments may be randomly determined or depend on the wager placed by the player.

Although embodiments of the game-screen **160** may be employed to provide a basic game for the gaming terminal **10**, the game-screen **160** may also be adapted for bonus-game play. For example, during basic game play, selected symbols, such as "Super Wild" symbols, are copied from the first array **164** to the second array **167** as described above. If, for example, a required number of bonus symbols also appear in the first array **164** and/or the second array **164**, the player is awarded one or more free bonus spins in reels **162***a-e*, **165***a-e*, and/or other reel set(s). As shown in FIG. **14**, when the player redeems the free bonus spins, the reels **162***a-e* and **165***a-e* rotate while the "Super Wild" symbols from the basic game play remain in place. As such, the player can achieve winning symbol combinations with the same "Super Wild" symbols during the free bonus spins. In some embodiments, if additional "Super Wild" symbols appear in the first array **164** during a bonus free spin, they may also be copied to the second array **167** as described above. The increase in "Super Wild" symbols with such free bonus spins improves a player's chance to achieve a winning symbol combination.

Referring now to FIG. **15**, another embodiment of a game screen is illustrated. In response to a wager and inputs from a player via player-input devices **26**, the controller **42** and/or the external system **46** operate to execute a wagering game program that displays the game screen **260**.

As shown in FIG. **15**, the game screen **260** presents multiple reels that arrange symbols into multiple arrays. In particular, the game screen **260** presents a first set of simulated movable reels **262***a-e* and a second set of simulated movable reels **265***a-e*. The reels **262***a-e* include symbols **290** and the reels **265***a-e* include symbols **292**. The symbols **290** and **292** are consistent with a specific game theme, such as the theme shown in FIG. **15** based on the story of Cleopatra. The game screen **260** presents four vertically-arranged symbol positions **263** for each of the first set of five reels **262***a-e*. Meanwhile, the game screen **260** presents twelve vertically-arranged symbol positions **266** for each of the second set of five reels **265***a-e*. Correspondingly, the first set of reels **262***a-e* presents the symbols **290** according to a first array **264** having five columns and four rows, i.e., a 5×4 configuration. The second set of reels **265***a-e* presents the symbols **292** according to a second array **267** having five columns and four rows, i.e., a 5×12 configuration. Although the first array **264** and second array **267** are described with these particular configurations, it is understood that alternative embodiments may employ array configurations with different numbers of columns and rows. In these alternative embodiments, the configurations may be randomly determined or depend on the wager placed by the player.

Each of the reels **262***a-e* is associated with a particular sequence of symbols **290**, and each of the reels **264***a-e* is associated with a particular sequence of symbols **292**. When the player triggers reels **262***a-e* and **265***a-e* according to one embodiment, the reels **262***a-e* and **265***a-e* rotate according to their associated sequence of symbols. The reels **262***a-e* and **265***a-e* resemble the mechanically rotating reels of a conventional slot machine.

In many respects, the first array **264** and the second array **267** are respectively similar to the first array **164** and the second array **167** described above. In this embodiment, however, the symbols **290** and **292** have a variety of sizes. While some symbols **290**, **292** may occupy a single position **263**, **266** in their respective array **264**, **267**, other symbols **290**, **292** extend over multiple positions **263**, **266** and may extend across multiple sub-arrays. For example, an Antony symbol **293** occupies three positions **263** of the reel **262***c*, and a Cleopatra symbol **294** occupies three positions **263** of the reel **262***e*. Meanwhile, an Antony symbol **295** occupies four positions **266** of the reel **264***b*, and a Cleopatra symbol **296** occupies four positions **266** of the reel **264***d*. According to aspects of the present invention, wild and/or bonus symbols may be represented by symbols that occupy multiple positions on a reel. For example, the Antony symbol **293** and the Cleopatra symbol **294** appearing in the first array **264** may individually or collectively function as wild symbols. The Antony symbol **293** or Cleopatra symbol **294** may be evaluated as a clump of three separate Antony or Cleopatra symbols, respectively. Because they occupy multiple positions of their respective reels, however, the Antony symbol **293** and/or the Cleopatra symbol **294** may optionally act like a clump of three wild symbols that each occupy one position in the reel. For example, paylines across each of the first three rows of the array **264** get the benefit of the wild Antony symbol **293**. The Antony symbol **295** and the Cleopatra symbol **296** appearing in the second array **267** may also function as wild symbols.

Although the image of a symbol often indicates the function of the symbol, i.e., whether the symbol is a wild symbol, a bonus trigger, etc., some embodiments may specify that any symbol of a particular size has a given function. For example, a game may specify that all symbols occupying three positions of a reel are wild symbols.

In other embodiments, the function of a symbol also depends on which reel and/or array it appears. For example, a game may specify that symbols occupying more than two positions on a reel are wild symbols if they appear on particular reels of a particular array (e.g., reels **265***b-e* of the second array **267**). In another example, a game may specify that bonus spins are awarded if two symbols occupying more than two positions appear consecutively on corresponding reels of different arrays (e.g., the reel **162***a* of the first array **264** or the reel **265***a* of the second array).

Like the game screen **160**, symbols **290** from the first array **264** are selected and copied to positions in the second array **267**. For example, when the wild Antony symbol **293** and the wild Cleopatra symbol **294** appear on the first array, they are copied to positions on the second array **267**. As with the game screen **160**, the second array **267** may be divided into sub-arrays and each sub-array may receive the symbol copied from the first array **264**. Additionally, the sub-arrays may have a one-to-one mapping with the first array **264**, and the symbols may be copied from the first array **264** according to this one-to-one mapping. Furthermore, one or more paylines may be individually selected in the first array **264** and/or the

sub-arrays **268***a-c*. In other embodiments, one or more paylines are selected in the first array **264** and corresponding paylines are automatically mapped in mirror-like fashion to the sub-arrays. The combinations of the symbols along the paylines are evaluated for winning combinations.

Features of other embodiments described previously may be employed with the game screen **260**. For example, a "Mega Wild" symbol may appear in the first array **264** to distribute a plurality of wild symbols to randomly selected positions **263** in the first array **264**. These additional wild distributed by the "Mega Wild" symbol are also copied from the positions **263** in the first array **264** to corresponding positions **266** in the second array **267**.

Although embodiments described above may include only two arrays, it is understood that other embodiments may employ more than two arrays. For example, the game screen **360** illustrated in FIGS. **16-17** employs three arrays **364**, **367**, and **374**. The reels **362***a-e* and **372***a-e* provide a first array **364** and a second array **374** with five columns and four rows, i.e., a 5×4 configuration. The reels **365***a-e* provide a second array with five columns and twelve rows, i.e., a 5×12 configuration. Symbols selected from the first and second arrays **364**, **374** may be copied to the third array **367**. Symbol combinations across all three arrays **364**, **367**, and **374** are evaluated for winning combinations. In one example, FIG. **17** illustrates the results of spinning the reels **362***a-e*, **365***a-e*, and **372***a-e* during basic game play with the game screen **360**. Bonus spins are awarded if the appropriate bonus symbols appear on the reels **362***a-e*, **365***a-e*, and **372***a-e*, e.g., if two symbols occupying more than two positions appear consecutively on the reel **364***a* of the first array **364**, the reel **372***a* of the second array **374**, or the reel **365***a* of the third array **367**. During the bonus spins, wild symbols **391** appearing in the first and second arrays **364**, **374** are copied to the third array **367**. FIGS. **16-17** demonstrate that multiple arrays may be used to modify the symbols of a single array.

Accordingly, embodiments according to aspects of the present invention provide multiple reels that arrange symbols into multiple arrays to determine an outcome for a wagering game. To enhance the sense of anticipation during the wagering game, selected symbols are copied from one array to another. In some embodiments, the selected symbols are wild symbols. When the wild symbols are copied to other reel positions, the player perceives a greater likelihood of achieving a winning combination.

Although the embodiments above may evaluate arrays or sub-arrays that do not overlap, alternative embodiments combine overlapping arrays or sub-arrays with the concepts describe above. For example, referring to FIG. **18**, the game screen **160** permits the selection of sub-arrays **168***a* and **168***b* as described with reference to FIG. **13**, but in this alternative embodiment, the sub-arrays **168***a* and **168***b* overlap. In particular, the combination of symbols in each of the sub-arrays **168***a* and **168***b* share a common row. The symbols in the common row may be a part of one or more paylines in both sub-arrays **168***a* and **168***b*.

In addition to sharing a common row, overlapping arrays or sub-arrays may share a common row or any number/configuration of symbols. For example, FIG. **19** shows a configuration in which the corners of three arrays (or sub-arrays) **468***a-c* overlap. Specifically, array **468***a* and **468***b* share a 2×2 configuration of four symbols, and array **468***b* and **468** share another 2×2 configuration of four symbols. The shared symbols may affect the winning combinations of two or more arrays.

In some embodiments employing overlapping arrays, particular symbols that appear in the shared sections of the arrays may provide special features. For example, if a number of particular symbols appear in one of the shared sections, a bonus event may be triggered. In another example, if a wild symbol appears in one of the shared sections, the wild symbol expands to occupy other positions in the overlapping arrays, e.g., is copied to all positions in the reel.

Furthermore, a symbol that is shared by two or more arrays may be considered to appear a number of times equal to the number of arrays sharing the symbol. For example, if a bonus symbol is shared by three arrays, it is considered to appear three times. Thus, if three bonus symbols are required to trigger a bonus event, the bonus event is triggered even if it visually appears once.

As described previously, in some embodiments, the player may be required to place additional wagers to put each of the sub-arrays into play. In general, the player may be required to place wagers or make payments to put any aspect of the arrays into play. For example, certain reels or positions on the reels may be disabled until the player pays to unlock these reels or positions. In other embodiments, other types of event may have to occur before sections of the arrays are placed into play. For example, a particular symbol or combination of symbols may have to appear in one sub-array before the player can play paylines in another sub-array. As another example, a particular symbol or combination of symbols may have to appear in the first array before any part of the second array can be played. In other words, the appearance of particular symbol or combination of symbols may be required to unlock other parts of the arrays for game play.

In general, the availability of some features of the wagering game, e.g., selecting a size of an array or sub-array, may depend on the size of the wager. Other features, such as an expanding wild, may also depend on the size of the wager. For example, the player may be able to determine how many positions an expanding wild will expand if it appears in an array or sub-array.

In some embodiments, the pay table may depend on the size of the arrays or sub-arrays selected by the player or the controller **42**, similar to a Keno game. Thus, smaller arrays provide fewer winning combinations, while larger arrays provide a greater variety of winning combinations.

Each of these embodiments and obvious variations thereof is contemplated as falling within the spirit and scope of the claimed invention, which is set forth in the following claims.

The invention claimed is:

1. A gaming system comprising:

a credit detector adapted to detect a wager to play a wagering game;

a display adapted to display, in response to the wager, a first array of symbols and a second array of symbols for the wagering game, the second array of symbols including at least one second-array reel, the at least one second-array reel including a predetermined sequence of symbols, the at least one second-array reel rotating the predetermined sequence of symbols to determine at least partially the second array of symbols, the second array being divided into at least two sub-arrays, the at least one second-array reel extending into the at least two sub-arrays; and

a controller operative to select at least one symbol from the first array and to copy the at least one selected symbol into one or more positions in each of the at least two sub-arrays, the at least two sub-arrays being displayed with combinations of symbols including the at least one selected symbol, the controller evaluating the combinations of symbols in the at least two sub-arrays to determine an outcome to the wagering game.

2. The gaming system of claim 1, wherein the at least one selected symbol replaces at least one symbol in the predetermined sequence of symbols of one of the reels in the second array.

3. The gaming system of claim 1, wherein the first array and each of the sub-arrays include the same number of columns and rows, and the at least one symbol is copied to each of the sub-arrays according to a one-to-one mapping between the first array and each of the sub-arrays.

4. The gaming system of claim 1, wherein the controller selects the at least one selected symbol according to a position of the at least one selected symbol in the first array.

5. The gaming system of claim 1, wherein the second array is evenly divided by the sub-arrays.

6. The gaming system of claim 1, wherein the first array is selected from a larger array.

7. The gaming system of claim 1, wherein the controller evaluates the combinations of symbols in the at least two sub-arrays according to one or more paylines in each sub-array, the one or more paylines being determined by a selection of corresponding one or more paylines in the first array.

8. A method of conducting a wagering game for a human player, the wagering game including a game sequence in which the player provides an input and a wagering game outcome is determined, the method comprising the acts of:

using a user interface device to accept the player input, and transforming the player input to electronic data signals indicative of a wager to play the wagering game;

using one or more processors to interpret the wager from the data signals and to cause the recording of a digital representation of the wager in one or more storage devices;

using at least one of the processors to initiate the game sequence of the wagering game;

using at least one of the processors to cause at least one display device to display a first array of symbols and a second array of symbols for the wagering game, the second array of symbols including at least one second-array reel, the at least one second-array reel including a predetermined sequence of symbols, the at least one second-array reel rotating the predetermined sequence of symbols to determine at least partially the second array of symbols, the second array being divided into at least two sub-arrays, the at least one second-array reel extending into the at least two sub-arrays; and

using at least one of the processors to select at least one symbol from the first array and to copy the at least one selected symbol into one or more positions in each of the at least two sub-arrays, the at least two sub-arrays being displayed with combinations of symbols including the at least one selected symbol; and

evaluating the combinations of symbols in the at least two sub-arrays to determine an outcome to the wagering game.

9. The method of claim 8, wherein the at least one selected symbol replaces at least one symbol in the predetermined sequence of symbols of one of the reels in the second array.

10. The method of claim 8, wherein the first array and each of the sub-arrays include the same number of columns and rows, and the at least one symbol is copied to each of the sub-arrays according to a one-to-one mapping between the first array and each of the sub-arrays.

11. The method of claim 8, further comprising using the at least one processor to selects the at least one selected symbol according to a position of the at least one selected symbol in the first array.

12. The method of claim 8, wherein evaluating the combinations of symbols in the at least two sub-arrays comprises evaluating the combinations of symbols in the at least two sub-arrays according to one or more paylines in each sub-array, the one or more paylines being determined by a selection of corresponding one or more paylines in the first array.

13. A computer program product comprising a non-transitory computer readable medium having an instruction set borne thereby, the instruction set being configured to cause, upon execution by a controller, the acts of:

using a user interface device to accept the player input, and transforming the player input to electronic data signals indicative of a wager to play the wagering game;

using one or more processors to interpret the wager from the data signals and to cause the recording of a digital representation of the wager in one or more storage devices;

using at least one of the processors to initiate the game sequence of the wagering game;

using at least one of the processors to cause at least one display device to display a first array of symbols and a second array of symbols for the wagering game, the second array of symbols including at least one second-array reel, the at least one second-array reel including a predetermined sequence of symbols, the at least one second-array reel rotating the predetermined sequence of symbols to determine at least partially the second array of symbols, the second array being divided into at least two sub-arrays, the at least one second-array reel extending into the at least two sub-arrays; and

using at least one of the processors to select at least one symbol from the first array and to copy the at least one selected symbol into one or more positions in each of the at least two sub-arrays, the at least two sub-arrays being displayed with combinations of symbols including the at least one selected symbol; and

evaluating the combinations of symbols in the at least two sub-arrays to determine an outcome to the wagering game.

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